University of Alberta

A Model of Architectural Diversity in the Fur Trade

By

Michael R.A. Forsman ©

A thesis submitted to the faculty of graduate studies and research in partial fulfillment
of the requirements for the degree of Doctor of Philosophy.

Department of Anthropology
Edmonton, Alberta

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *A Model of Architectural Diversity in the Fur Trade* submitted by Michael Robert Alexander Forsman in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Dedicated to the memory of

Dr. John Foster,

historian, scholar, and friend to students.

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Chapter 1

INTRODUCTION

Major interest in the history of northern North American fur trade began with Harold Innis's publication of *The Fur Trade in Canada*, in 1930 (1970). Forts, or sites of habitation and trade, are one subject within a comprehensive meaning of the fur trade. A generalized discussion of the archaeology and history of architectural remains, then, necessarily incorporates broad geographical limits and an extensive temporal scale. The overall geographical extent encompasses much of northern North America, including most of Canada and part of the United States. This distribution is principally an outcome of geography inasmuch as the rich fur regions lay within the boreal forests of the north and west. On the temporal scale, beginning in the sixteenth century, the exchange of furs for European goods led the French up the St. Lawrence River valley, and eventually to the Great Lakes. By the eighteenth century the French were exploring and developing trade relations with the Indians or Natives (labels common in historical literature as opposed to First Nations or aboriginal people) in the hinterlands of the upper Great Lakes. The fur trade was pushed to the Lake Winnipeg basin and up the lower reaches of its major tributary rivers by the French in the eighteenth century. This frontier was extended still farther by later Montreal traders, the North West Company and the Hudson's Bay Company. As the fur trade developed through the Saskatchewan, Churchill River, Athabasca, Peace and Mackenzie River basins, the whole of this area became known as the *Grand Nord*. Following amalgamation in 1821, the Hudson's Bay Company continued to extend the frontiers of trade to include the Yukon territory, and the northern Pacific slope in the west, and the Ungava and Labrador districts in the east. Forts and buildings were erected throughout these regions (Figure 1) and, as material culture, were inextricably involved in historical change. As a reflection of how the behaviour of social groupings and individuals affected the construction of their material world, relative to a common economic goal, architectural changes occurred that are best described as illustrative of culture change (Figure 2).

The temporal range of the thesis begins with the formation of the Hudson's Bay Company and their competitive entry into the fur trade in 1670, and extends to 1870 when its territorial rights were transferred to Canada. The geographical scope is illustrated by the inclusion of widespread data pertinent to French, Hudson's Bay

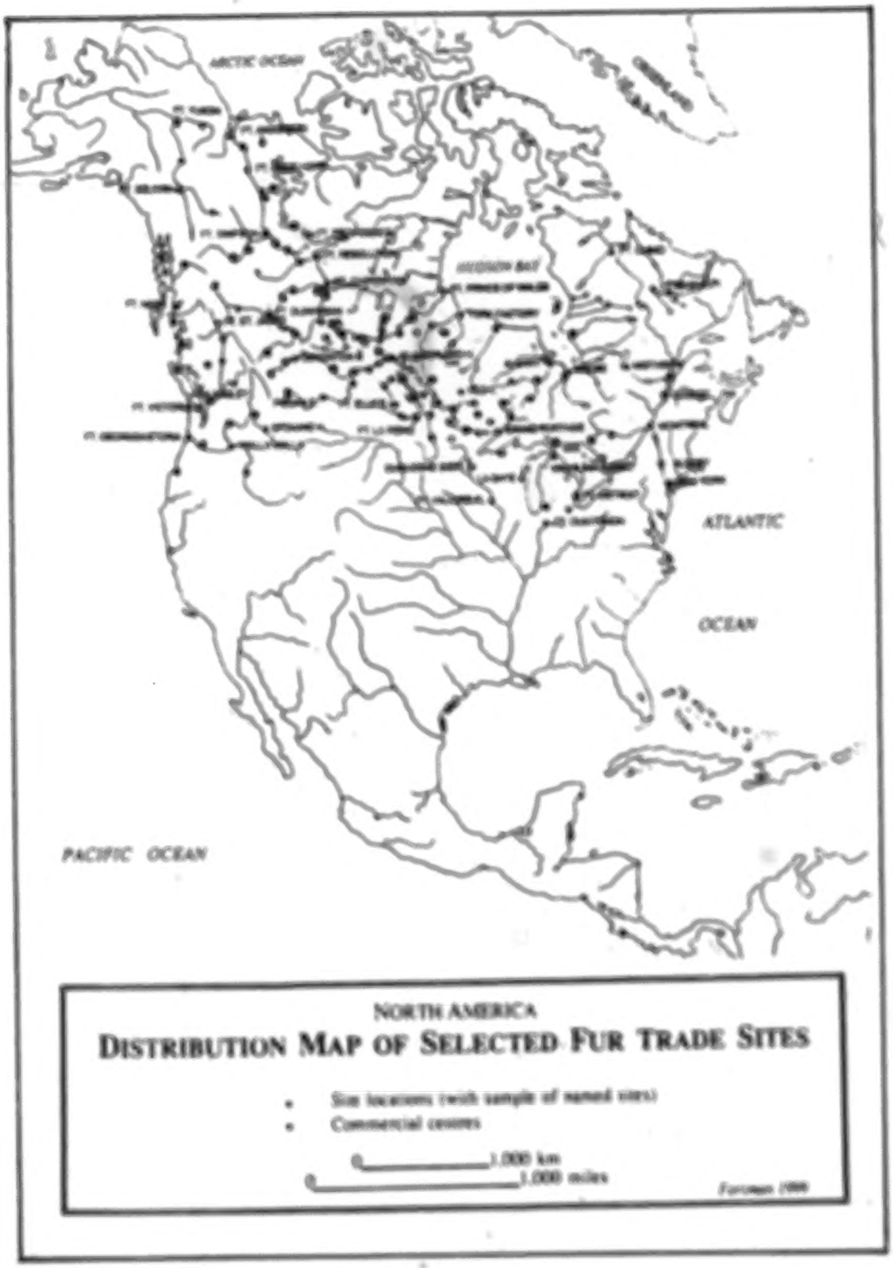
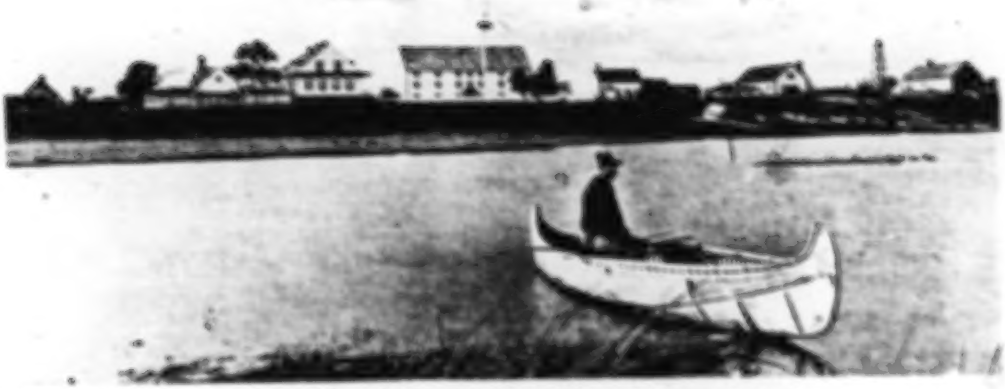

ARCTIC OCEAN
GREENLAND
HUDSON BAY
ATLANTIC
OCEAN
PACIFIC OCEAN
NORTH AMERICA
DISTRIBUTION MAP OF SELECTED FUR TRADE SITES
• Site locations (with sample of named sites)
• Commercial centres
0 1,000 km
0 1,000 miles
Forsman 1990

Figure 1. The study of fur trade architectural diversity, in this thesis, has relied on site data from across much of northern North America.



MOOSE FACTORY, Hudson Bay, Ontario (Credit: Geological Survey of Canada)

FORT FRASER, Fraser Lake, British Columbia (Credit: Geological Survey of Canada)

Figure 2. Forts built during the later fur trade were more architecturally diversified than more ancient sites.

Company, Pedlar, North West Company, and other fur trade establishments. Within these temporal and geographical limits, a sequence of historical events serves to define shorter episodes. One period includes the activities of the French until their capitulation at Montreal in 1760. In 1761 English-speaking merchants began to participate in and encroach upon the fur trade out of this centre. This following period, with all of the independent traders, partnerships, small companies, and the North West Company extended to 1821. At this date amalgamation of the North West Company and the Hudson's Bay Company took place, an event that introduced the third major period as one of monopoly control. This episode concluded in 1870, when many of the Hudson's Bay Company charter rights were transferred to the government of Canada. Although fur trade rights were not relinquished, extension of a chronological scale portraying later site data would necessitate a broader historical presentation than is provided here.

An Outline of the Fur Trade

French movement into the Great Lakes region, the Mississippi, James Bay and Hudson Bay occurred in a context of colonial competition and expansion between French and English in North America (Rutledge 1956). During the seventeenth century the French began to acquire knowledge of the forest areas surrounding the upper Great Lakes. The *coureurs de bois*, freelance fur traders, formed relationships with local Indian groups and developed expertise in the modes of transportation and survival in a harsh climate. Although not foremost, the explorations of Pierre-Esprit Radisson and Médard-Chouart des Groseillers in 1659-1660 are well known. Their proposal to the French government to open inland trade via Hudson Bay was not accepted, not because they had defied regulations in order to conduct their expedition, but because it posed a threat to colonial development in the St. Lawrence (Eccles 1983). Their persistent search for backing eventually brought them to London where they found financial support. The formation of the Hudson's Bay Company in 1670, by its royal charter, introduced the English to the northern fur trade, thereby constraining New France from north and south. The construction of forts in the James Bay region, the "Bottom of the Bay," provoked the French into contention for the area. The French threat to these posts was diminished by the Hudson's Bay Company building forts in locations farther up the Bay. Contention over trading rights precipitated open conflict and forts in the Bay changed hands several times. This issue was not settled until

1713 and the end of Queen Anne's War, with the Treaty of Utrecht, when England gained control over the entire watershed of Hudson Bay.

According to Eccles (1983), French expansion to the southwest of the Great Lakes was to check encroachment by the expansion of the English colonies to the south. This move quickly led to expeditions reaching the Mississippi. North of this area, Daniel Greysolon DeLhut established Kaministiquia at the west end of Lake Superior in 1668-1669. By 1688, under Jacques de Noyon, a winter post was established farther west at Lac la Pluie, modern Rainy Lake. Following this date, French activities in the north focused on Hudson Bay and in 1697 captured York Fort, which was renamed Fort Bourbon. With the Treaty of Utrecht came the restoration of Hudson's Bay Company control. This outcome constrained the French to a resumption of exploration and territorial presence westwards through the Great Lakes.

As described by Innis (1970), no further advance west of Lake Superior was made for a long time after 1690, but elsewhere in the Great Lakes a trading, missionary and military presence was consolidated to oppose the threat from southern English traders. Trading activities resulted in the acquisition of furs sufficient to glut the French market, and trading in the upper Great Lakes was formally closed by proclamation. After 1710 trade again became more open, and about 1715 Fort Michilimackinac was built to maintain control in the Straits of Mackinac region. By 1717 Kaministiquia was reestablished and, as the first of the *Postes du nord*, French presence in the west of Lake Superior was renewed. Policies regarding the fur trade suggest its relationship to political objectives grew closer. One objective was the formation and strengthening of political alliances with inland Native populations. This move was intended to constrain the expansionist pressure from the lower English colonies. To this end, the intertwined economic and social relations between Canadian fur traders and Natives were viewed as a potentially useful adjunct to imperial aspirations (Eccles 1979, 1981:326, 1983).

In addition, the French government was interested in reaching the Pacific Ocean by an overland route and, hopefully, by an Inland Sea. During the 1720s and 1730s, French activities began to impact on Hudson's Bay Company trade by an intensification of commercial rivalry. Beginning in 1731 under the direction of Pierre Gaultier de la Vérendrye, a Canadian officer with previous military and trading experience, the fur trade was effectively pushed west of the Great Lakes. Forts in this western region came to be known as *Postes de la mer de l'ouest* (Champagne

1968). Towards the north and west, these actions stimulated competition between Canadian traders and the Hudson's Bay Company. Each fort established by La Vérendrye constituted a step in westward advance. This string of forts included Fort St. Pierre (1731), Fort St. Charles (1732), Fort Maurepas (1734), Fort Rouge (1734), and Fort la Reine (1738). Expeditions outward from Fort la Reine reached the Mandans to the south, and north to the construction of Forts Dauphin and Bourbon in 1741. Charged with being more concerned with trade than exploration, La Vérendrye was replaced as commander in the west. His successors, however, were even less successful and it seems likely they made no advance beyond the junction of the North and South Saskatchewan Rivers. French posts along the Saskatchewan were nevertheless successful in reducing the amount of Native trade going downstream to the Bay-side forts.

The French efforts in the Red, Assiniboine, and Missouri River regions, and the Saskatchewan basin have been considered a remarkable accomplishment considering French political and economic difficulties (Eccles 1984:11). The number of canoes and men sent inland between 1739 and 1749 represented a substantial commitment and investment, one which could be trivialized only by comparison to the inland competition one-half century later. Although the Hudson's Bay Company gained supremacy in the Bayside region as of 1713, growing competition began to draw the company inland, first with explorer-traders. Anthony Henday, Joseph Smith, Joseph Waggoner, William Pink, and Mathew Cocking not only recorded the French presence, but observed the advantages of inland trade and the difficulty of inducing Natives to make the long voyage to the Bay. The Hudson's Bay Company men sent inland did not match the numbers of French, but attracted sufficient trade to the Bay-side forts that they could ignore, for a time, a growing need to construct competitive inland forts. This situation was to change after Great Britain acquired Canada (an event also known as the Conquest) during the Seven Years War and marked by the capitulation of Montreal in 1760.

When the Montreal-based English fur trade advanced westwards it consisted, increasingly, of Anglo-American, English and Highland Scots merchants as suppliers, agents and "Pedlars." These entrepreneurs relied extensively on the experience of French personnel and traditions. Some of the principals and many of the *engagés* had experience of the earlier trade (Wallace 1954). Among this group were Louis Primeau, Maurice Blondeau and François LeBlanc. The Pedlars from Montreal initially worked as competing interests. An incomplete list of competitors includes Bartholomew Blondeau, William Bruce, Thomas Corry, James Finlay, Thomas and Joseph Frobisher, Cuthbert Grant, Booty Greaves, Jean-Baptiste Cadotte, Alexander Henry the elder, Charles McCormick, Nicholas Montour, Peter Pangman, Charles Patterson, Peter Pond, and John Ross.

Partnerships among rival traders began to form in the mid-1770s, some seasonal and others annual. Montreal Pedlars, and some American-based traders, reoccupied or rebuilt French sites, and constructed new forts in the Lake Winnipeg, Red and Assiniboine River regions, and along the Saskatchewan River system. The traders were present in numbers enough to cause alarm in the Hudson's Bay Company (Rich 1960). As early as 1754, when the French traded the best furs from Henday's brigade (HBCA E.2/4), the closer trading distance from an inland position clearly offered a competitive advantage, but no Hudson's Bay Company fort was established inland until 1774 when Cumberland House was built by Samuel Hearne. Furs were successfully procured at this site even if only a few packs could be sent down in each of the small Indian canoes (Tyrrell 1934, Rich 1951). With the acquisition of experience, and increased support from York Factory, the Hudson's Bay Company began to construct additional forts and provide a more competitive effort. Not until 1786, however, was the company able to catch up to the Pedlars at Pine Island on the North Saskatchewan, and this only through invitation (HBCA B.87/a/9).

Intensity of competition among the Pedlars was expensive and was probably a greater factor in the formation of their early partnerships than the threat posed by the Hudson's Bay Company. Alexander Henry the elder provided a description of how his partnership with the Frobisher brothers was effected during a mutual journey inland (Bain 1969:263). Such unions were new and temporary. Henry also described the Pedlar's competition in the Saskatchewan district prior to this date:

> Four different interests were struggling for the Indian trade of the Saskatchewan; but, fortunately, they had this year agreed to join their stock, and when the season was over, to divide the skins and meat. This arrangement was beneficial to the merchants, but, not directly to the Indians, who, having no other place to resort to nearer than Hudson's Bay, or Cumberland House, paid greater prices than if a competition had subsisted. (Bain 1969:320)

As chronicled by Innis (1970), changes and renewals of partnerships led to larger, more comprehensive agreements. In 1779 a sixteen share association of partnerships was agreed to by eight smaller companies or partnerships holding two shares apiece. This action was antecedent to the formation of the North West Company in 1783. The later company was also constituted on the basis of 16 shares, but some of the smaller companies and individuals who had been part of the earlier association were now left out. The continued existence of these small competitors led, in time, to their participation in another company, Gregory, McLeod and Company, also based in Montreal. Four years of intense and occasionally violent competition followed. The shooting death of John Ross in Athabasca likely precipitated an agreement to allow Gregory, McLeod and Company shares in a new North West Company agreement, dated 1787. This new company was formidable in its dominance of the fur trade. Small traders such as David and Peter Grant were met with such overwhelming opposition that they were quickly defeated or absorbed. Competitors with larger financial backing included Forsyth, Richardson and Company; Parker, Gerard and Ogilvy; Leith, Jamieson and Company, and John Mure of Quebec. These smaller companies persisted in trade until they, too, formed a larger entity, the New North West Company, also known as the XY Company and still later as Sir Alexander Mackenzie and Company. In turn, this also joined with the North West Company in 1804. As the remaining competitors in the field, the North West Company and the Hudson's Bay Company carried on until an agreement to amalgamate was signed in 1821.

Throughout the competitive era, the search for untapped fur resources drove exploration and territorial expansion. Old sites were abandoned and new ones constructed. The benefits of even small partnerships were early shown when a pooling of interests enabled Peter Pond to pass the height of land into the Athabasca district in 1778. By 1814 the North West Company had reached the Arctic and Pacific Oceans, and established forts in the Mackenzie River, New Caledonia and Columbia River districts. The Hudson's Bay Company was still confined to its Rupert's Land boundaries. Territorial expansion and the proliferation of posts certainly took place in association with competition among the Pedlars, small companies, North West Company and the Hudson's Bay Company.

Territorial domination by the North West Company in the early nineteenth century, along with its attempt to buy into the Hudson's Bay Company, were countered by reorganization of the company under Andrew Wedderburn (later Colvile), and by a plan of Thomas Douglas, Earl of Selkirk, to establish an agricultural community in the Red River district. The policies implemented by the Hudson's Bay Company, as outlined by Williams (1970), were perceived as a direct provocation by the North West Company and the fur trade entered a phase of bitter contention. The North West Company derived large quantities of pemmican from the area known as Assiniboia that were shipped to Bas de la rivière to maintain its brigades of outbound and inbound canoes. Selkirk's agricultural plan included an agreement to supply the Hudson's Bay Company with local produce from the same area and offer the same location as a field for the retirement of company personnel. The final years of competition between the two companies were carried out on all fronts. The Hudson's Bay Company renewed the attempt to establish a presence in Athabasca and, despite conflict and setbacks, was successful. Although trade in this area was not profitable for the Hudson's Bay Company until after amalgamation, the North West Company's profitability, already in decline, diminished yet further. The Hudson's Bay Company, furthermore, began to send expeditions across the Rocky Mountains into the Columbia district. In the Red River area the Selkirk colony threatened provision sources and here the North West Company was aided by the Métis. The Hudson's Bay Company placed embargoes on the North West Company, pemmican was seized and counter-seized, forts captured and re-captured, and burnt. The hostilities culminated in the Seven Oaks affair where more than 20 people were killed, and by retaliation in Selkirk's capture of the great North West Company depot, Fort William. The rapprochement signaled by the Deed Poll of 1821 promised not only an end to hostilities, but also the prospect of participation and profit for many former Nor' Westers.

Union of the two companies, dominated in London by the old management and carried on in the field by the new Governor of the Northern Department, George Simpson, achieved stability through new economic measures. Redundant posts were closed, employees laid-off and transferred to the Red River colony, and fur conservation measures imposed. Transportation routes were re-organized to be more efficient. Good economic management and a monopoly position resulted in a stable fur trade economy and long-term profitability. By the middle of the nineteenth century, Métis free-traders were making inroads on the old company, beaver declined in demand as the silk hat was adopted, and the attraction of arable land appealed to new settlers. Political, social and economic changes precipitated negotiations between the Hudson's Bay Company, the British government and Canada leading to the transfer of territorial rights to Canada in 1869-70, although the western constituency was not consulted. The Hudson's Bay Company continued as a force in the fur trade but without the political authority previously known.

The above overview provides a background to the investigation of forts as a component of the fur trade. Forts, posts, outposts, wintering camps and other sites were integral to the conduct of trade across an impressive geographical extent, through a broad span of time, and changing economic and political conditions. How these sites of fur trade architecture relate to this historical outline has yet to be examined. Preliminary to such an investigation, the theoretical orientations of other researchers are considered.

Archaeological and Historical Theoretical Frameworks

Fur trade histories have considerable temporal depth. In *Voyages from Montreal...* published in 1801, Alexander Mackenzie (1971) included a 132 page introduction written by Roderick Mackenzie titled "A general history of the fur trade from Canada to the North-West." This work and many others published subsequently provide narrative histories or chronicles of events and, in degree, their interrelations. Some of these, which might also be termed empirical studies, are exemplified by reports or articles that convey a body of historical information without detailing a relationship to a larger historical context (e.g., Morton 1973; Smyth 1976; Mitchell 1977; Lytwyn 1986; Babcock 1990).

A number of studies have indicated scholarly attraction to theoretical issues linking fur trade history to other disciplines such as economics (Innis 1970; Rich 1960; Rothstein 1972; Ray 1974). On this topic, Innis's study is an example of the staple thesis of economic history inasmuch as the exploitation of fur resources for an overseas industrial market affected the course of Canadian history and development. W. J. Eccles (1983), on the other hand, argues that the development of North American fur trade economics should be considered within a still more encompassing colonial policy. Britain, for example, had been successful in expanding colonial influence in North America by policies that encouraged not only the fur trade but also the exploitation of other resources and agricultural development. France, in competition with England for colonial possessions, needed to limit the growth of England's presence on the North American continent. One means of advancing this political goal was to solidify relations with Native groups as allies and was to be partly carried out through the fur trade. Thus, English and French employed differing economic strategies as a component of colonial competition.

In the 1960s and 1970s, anthropological perspectives began to develop in other approaches to fur trade history. Examples reviewed included those of cultural or otherwise non-materialist considerations (Martin 1978; White 1959), overtly politically-based explanations (Hickerson 1973; McCormack 1984), and examinations of particular topical components within the field. These latter studies interpreted the role of women in the fur trade (Brown 1980; Van Kirk 1980), the experience of specific Native groups (Nicks 1980; Thistle 1986; Milloy 1988) and also presented cultural ecological approaches (Cox 1973; Brumbach and Jarvenpa 1989). These historically and anthropologically-oriented studies ranged from those taking a strong Euro-centric perspective and subject matter (Rich 1959) to those dealing with the fur trade as a peripheral or catalytic factor in discussing changes to Native groups and relations (Milloy 1988).

In a review of fur trade histories, Tanner (1983:188) remarked that although publications and papers have shown increasing interest in the fur trade, they have not constituted "a new approach to the subject." Mitchell's *Fort Timiskaming and the Fur Trade* (1977) was cited by Tanner (1983:190) as an example of historical particularism because it was a publication of previously little known manuscript material. These works are more numerous and stand in contrast to histories valued for their multidisciplinary perspective such as *Give Us Good Measure* by Ray and Freeman (1978). More recently, Tough (1988:76) has decried the paucity of interdisciplinary effort and lack of social consciousness to address, for example, "the theoretical perspectives about the impact of the fur trade on aboriginal peoples." The degree to which criticisms by scholars have influenced research appears in the trend towards histories concerned with the nature of political, social and economic interrelations (e.g., Brown 1980; Mahonuk 1988; Ray 1978; Van Kirk 1980).

Archaeological Perspectives on the Fur Trade

Early archaeological studies of the fur trade undertook to satisfy mainly particularistic objectives. These studies typically included the determination of site location, site extent or delineation of architectural layout, the collection of artifacts, the acquisition of construction details and interpretation of building phases, the reconstruction of past lifeways, the correlation of site occupation with company affiliation, the determination of the degree of correspondence between artifact assemblages and historic inventories, the nature of European adaptation to frontier life, and the recognition of archaeological correlates to ethnicity and status in fur trade society. A number of these studies have been identified in Lynda Gullason's literature review (1990:10), Forsman and Gallo's earlier summary (1979), and Klimko's (1994) more recent Ph.D. thesis.

Few studies have sought to synthesize archaeological information across space and through time within more generalized theoretical frameworks. One broadly-based approach (Forsman and Gallo 1979), concerned with the synthesis of artifactual data assumed that the range of artifact diversity at fur trade sites was conditioned more by the economic activity and logistics of distant trade than by distinctions between competing companies. The constraints of trade constituted a larger system than the behavioural modes and attitudes of distinct ethnic groups, whether Orkneymen, Highland Scots, English, Canadians, Ojibwa, Cree or Athabascans. The overlying system regulated the variety and distribution of artifacts to the extent that ethnic associations could be ignored at a generalized level of discussion. This tendency was manifest in the archaeological record regardless of fort size, location in the Plains-Parklands or the boreal forest, and in Ontario or British Columbia. It also applied whether or not the site was partially or wholly excavated, but appeared affected by the methods used to recover small objects such as lead shot and beads. Overall regularity was found in the range of artifact classes and their relative frequencies in fur trade sites dated between 1768 and 1830. The regularity was termed the Early Fur Trade Artifact Pattern (Forsman and Gallo 1979, Forsman 1983), and the analysis largely followed upon the work of South (1977). Explanation of the pattern and its relationship to others such as the Carolina and Frontier Patterns remains ambiguous (Prager 1980, Forsman 1983, Martin 1985). Prager applied Schiffer's (1972, 1976) concepts of archaeological formation processes to the fur trade. Notwithstanding her conclusion that the behaviour of the sites' occupants had an effect on the archaeological record, she was unable to advance an explanation (1980:99) for the observable characteristics of the Early Fur Trade Artifact Pattern. Since then, Martin (1985:1) has observed that the major shortcoming of these contributions is their failure to serve as a springboard to the explanation of the salient characteristics of the patterns and differences between them.

In the search for greater explanatory power, archaeologists also turned to structuralism and ideological interpretive frameworks. Pyszczyk's Ph.D. thesis examined the structure of material culture and its role in signaling between people in cultural systems (1987:1). A similar ideological emphasis on the role of non-verbal communication, using material culture and understood through symbolization of the social hierarchy has been extended by Hamilton (1990). He rejected an approach that focused on economic and social aspects (1990:2). Other anthropologically-oriented goals were to be found in studies of ethnicity (Kehoe 1976), socio-economic issues (Hamilton 1986; Pyszczyk 1987), topics on status, and social organization (Adams and Lunn 1985; Forsman 1985; Hamilton 1985; Prager 1985; Bobrowsky 1985; Pyszczyk 1985; Monks 1985). Kehoes's views of Native acculturation (1976) have been renewed by Gullason's work on Native ethnicity, and the role of gender relations in the contact period of the fur trade (Gullason 1990, 1994). Among all of these studies, Gullason's most emphasized culture change, or process. Still more recently, Klimko (1994) has provided a detailed study of the cultural milieu encompassing Canadian fur trade archaeological studies.

The above studies utilized approaches generally developed from a structural-functionalism model. Under this framework, society, economy, and political relations were seen as organized, or structured, in order to maintain equilibrium in fur trade culture through time. Social, behavioural and economic structures were then found to have material correlates. These, often in a circular fashion, served to validate perceived cultural structures. Variation contrary to positive correlations then required explanation outside the common fur trade experience. These variations were usually explicable as derived from individual actions. As an example, unjustified expenditures on the architecture of Fort Pelly, relative to its economic role and position within a post hierarchy, could be explained by an emphasis on a set of prestige values more strongly associated with its factor (Pyszczyk 1992:37). Elsewhere, the small size of John Sayer's Snake River Post contrasted to his apparent importance, and its lack of structural differentiation appeared to be an exception explained by reference to his diminished economic status (Hamilton 1990:108). In these studies, variation was not subject to defining criteria. Furthermore, extremes of variation appeared to be counter-indicative to an expected symmetry between material culture and its encompassing socio-economic structure, such that each seemingly illogical fact required its own explanation. In another view, the one adopted for this study, the total range of variation includes the contribution of extreme sites and it is changes to this range that requires examination and explanation.

Problem Statement

As a sub-discipline of anthropology, archaeology implicitly centres on cultural practices that affect material remains. To archaeologists, the two most important subject matters are the site and the artifact. As Clarke (1968:36) has stated, observations on the former constitute the recovery of the contextual or environmental attributes (the sphere of contextual analysis), distinct from the sphere of specific analysis that focuses on artifacts, assemblages and their attributes. Inasmuch as architecture is an immobile artifact of grand scale with related sub-sets of artifactual hardware including nails, window glass, hinges, etc., there is a temptation to treat all fur trade sites and artifacts in a holistic study. This thesis, however, is not about changes to architectural artifacts, or even the stylistic development of gabled or hipped roofs. Nor is it about changes in various construction techniques, for example, the relationship between advances in nail making technology, increasing availability of industrially manufactured nails, and how these influenced the construction of buildings. This study, instead, is about changes to the range of variation in the number of functionally distinct site buildings through time.

Direct, close, economic competition is proposed as a causative factor in stimulating change in architectural diversity, cultural diffusion (spread in the distribution of fort architecture), variation in the number of market centres (forts), variation in the size of the laboring force (population), changes to organizational structure, and increasing contact between linguistically different cultural groups. It is assumed that a direct relationship existed between these cultural features and building variation. The assumption is tested by the search for patterns, and their delineation describes a course of change. If these patterns can be discriminated from one competitor to another, a correlation to their relative costs and economic success may be established. To the extent that this correlation can be achieved, competition is then said to explain architectural change and, by extension, a degree of culture change, survival, and continuity.

Culture change is commonly associated with evolution and progress through time. "Evolution," here, is not a favoured term, despite its frequent association with archaeology in recent publications (Teltser 1995), as I accept Gould's argument

(1996:217-230) that the term and definition of evolution be limited to the biological realm. "Progress" is another problematical word; one that can carry a value-laden connotation of improvement and is irrelevant here because it is so dependent upon a *post-hoc*, judgmental assessment. The meaning conveyed is that observed changes were successful, and are therefore good. Cultural change, here, rather, describes a movement, or changes in the direction, or course, of architectural variation through time. This variation, or diversity, refers to functionally distinct structures that can be enumerated at each fort for any common point in time, and this number may change from year to year. Culture change, in this thesis, refers not to site-specific changes annually, but to trends in a broad-scale collection of data through a time-span longer than a few years. The object of the thesis is to establish and delineate trends in architectural variation and infrastructure characteristics that are perceived as potentially related. Observations and analyses of these trends are undertaken in an effort to attain a larger goal of explaining, or understanding, *why* changes did, or did not, occur.

This dissertation proposes to develop and examine the thesis statement that:

> **structures related to different functions at forts across a broad extent of northern North America, and from A.D. 1670 to 1870, can be synthesized into a Model of Fur Trade Architectural Diversity.**

Changes in this model can be explored by a variety of means including, but not limited to, a rate of territorial expansion, and fort infrastructure characteristics such as a rate of fort construction, fort size, fort population, and economic competition. The concept of competition is frequently associated with that of culture change, and the rivalry of North American-based interests (including the French, Pedlars, and later North West Company) *versus* those on Hudson Bay is taken as a tool to segregate populations of site data for comparative purposes. The data bases are expected to reveal patterns, or trends in variation through time. Analysis of the patterns is not intended to satisfy an hypothesis that they all covary positively; rather, it is an exploration for relationships that may or may not vary independently, but, nevertheless, play a role in the search for understanding the Model of Architectural Diversity as an expression of culture change.

Chapter Two presents the theoretical orientation of the thesis through a description of "models" used in other studies, and the need for a new model. Chapter Three develops the methodological approach. Chapter Four undertakes a sample study of increasing diversity with reference to provisioning problems and the development of the provision store. Chapter Five examines the question of architectural diversity and establish its model. The comparability between increasing diversity and the rate of fur trade expansion is explored in Chapter Six. Chapter Seven examines the first of three infrastructure characteristics, the rate at which sites were constructed and rebuilt. This analysis includes a temporal demonstration of that rate, and compares its relationship to fur trade expansion and architectural diversity. Chapter Eight reviews and compiles archaeological and historical data pertaining to the size of palisaded, stockaded, or fenced forts. A representation of the size of fort enclosures through time is then compared to the rate of fur trade expansion, the rate of fort construction, and architectural diversity. In Chapter Nine a synthesized model of variation in site population will be investigated relative to the previous chapters on architectural and site variables. Chapter Ten carries out a summation of the relative economic states of the major competitors in the North American-based trade *versus* the Hudson's Bay trade. The summations are expressed in graphical form and are also compared to the foregoing variables Chapter Eleven, the conclusions, summarizes each of the chapter topics in reference to the Model of Architectural Diversity, and presents some implications relative to further research.

Chapter 2

THEORY AND MODELS

The foregoing background information and problem statement argue for a framework unifying archaeological information and documentary data. A review of theoretical orientations in other studies provides a rationale to the approach taken here.

Overall Theoretical Orientation of the Thesis

The theoretical position of this thesis is placed within a more general context by recapitulating aspects of debate in archaeological theory. In 1962 Binford reiterated the Willey and Phillips dictum that "archaeology is anthropology or it is nothing" (Willey and Phillips 1958:2; Binford 1962:217). Binford argued that archaeology should be expected to make major contributions to explain "...the total range of physical and cultural similarities and differences characteristic of the entire spatial-temporal span of man's existence" (1962:217). His treatment of, for example, the Old Copper culture marked explicitly the commencement of anthropological interpretations and the "interesting attempts at generalization" which Hodder (1988:373) appraised as the salient contribution of Binford's early work.

Binford's critique of earlier "traditional" archaeology (1962; 1964; 1968) as inductive, inferential exercises and his suggestions for alternative methods have come to be regarded as the introduction to New Archaeology. New Archaeology was supposed to adopt a methodology that included specified goals, objectives, and hypotheses; and a range of quantitative and statistical techniques. This approach quickly became synonymous with "explicitly scientific" archaeology (Watson *et al.* 1971:x). The emphasis of this approach was on identifying the effects of cultural processes through a rigorous methodology. This emphasis contributed to the still further definition of the New Archaeology and explicitly scientific archaeology as processual archaeology.

New Archaeologists were frequently divisive and argued over the constitution of processual archaeology (Schiffer 1980; Binford 1981b). Binford (1981b:21) suggested that his anthropological archaeology agenda could be accomplished by focusing on process or the operation and structural modification of systems and cultural sub-systems His discussion of the systemic approach referenced the works of both Julian A. Steward (1955) and Leslie A. White (1959). Although Steward's cultural ecological approach was hailed as a valuable means of increasing our understanding of cultural processes (Binford 1962:218), Binford chose not to adopt terms such as "ecological archaeology" or "economic archaeology." Instead, processual archaeology emphasized a systemic theoretical perspective (Binford 1962:218).

The ascendancy of critical views espoused by Hodder and others marked a swing towards another part of the theoretical spectrum. The scientific paradigm of processual archaeology was denigrated by the post-processualists: it is not a science which approaches objective truth and is, therefore, threatening. In this context, processual concepts of system and adaptation are seen as a fundamental weakness responsible for the presumption that mankind behaves passively (Hodder 1984:30; 1985:1). Alternatively, Hodder (1985:13) viewed people as actively creating their culture, and he argued that theories basic to archaeological knowledge must be concerned with the principles according to which individuals construct their social worlds.

Processual archaeology was further reviled because of its basis, and bias in terms of a Western science and ethic (Hodder 1991:14, 15). As if these elements were insufficient impediments to learning about the past, Hodder (1984:29) has also charged that processualists threatened the removal of archaeology from any ability to make a relevant contribution to the modern world. Hodder (1984:29,30) wants archaeology to play a more active part in society and archaeologists to take a political stance. The past is to be used to emphasize the historical context of rationality and to engender respect for the individual, actively and meaningfully negotiating and creating social position (1984:30). This viewpoint fits with the opinion that different pasts should be constructed within different but limited sets of social interests (1984:30) for social groups such as women in England and America, ethnic minorities and third world populations. More recently Hodder (1991:7-18) has called for "interpretive archaeology" with the archaeologist to become an interpreter between past and present on behalf of ethnic minorities, women and non-Western peoples. This position may be extremist in its potential risk of ethnocentric manipulation in archaeology.

The processual/post-processual debate has revolved mainly around why and how to investigate the archaeological record, with differing emphasis given to discovering the past mind set. The processualists' concern has been with methods, such as the difficulties of assessing the validity of particular postulates and of testing for the accuracy of possible explanations (Binford 1967). The methodological component of Binford's work has continued strongly, and his exposition of middle range theory was a logical extension of this interest. Hodder (1988:373), however, has seen this as a retreat into methodology. For his part, Hodder has offered neither specific methods for constructing the mind set of past individuals nor criteria for critically reviewing such formulations. Thus, a processual archaeology that is supposedly apolitical and scientific is contrasted to a post-processual archaeology that is cognitive, political and socially relevant.

These diverse theoretical positions have subsequently been reviewed by other archaeologists in attempts to re-conciliate desirable aspects of both. Paul Courbin's (1988:159) diatribe against much of the processualists' work emphasized that the role of archaeology is the establishment of facts. This position has also been adopted by Binford (1989:489), in that archaeology should be the science of the archaeological record so that we are not led to construct a false past. In this, a concern with methodology is seen as a precondition to the making of generalized interpretive statements. Hanen and Kelley have similarly stated that it is true or real or correct explanations that we want (1989:14). What, however, is truth and how is it to be determined?

The concept of a systemic evolutionary approach has since been advocated as a compromise in examining relationships between technological, societal and ideological aspects of past cultures. Trigger (1989:305, 306) has summarized this position as using "biological ('scientific') evolutionary theory to explain cultural as well as biological variability". A criticism of this approach was that it could go to the extreme in denying a role to individual or social consciousness, and to human intentions as having any significance in altering human behaviour. This extremist charge, however, is probably tenuous in light of the emphasis on the complexity of cultural processes and the linkage of multiple factors. The systemic approach can accommodate the view that intent can lead to behavioural modification. To the extent that this viewpoint has been advocated, Trigger observed that other archaeologists reported "in every society a broad spectrum of alternative behaviour patterns on which the cultural equivalent of natural selection can operate....[and] emphasizes the adaptive value of individual choice in a manner analogous to free-market theories" (1989:324). Aspects of systems theory have thus been interpreted as promising (Trigger 1989:303-312) and have contributed in small degree to a fuller synthesis of the processual/post-processual approaches and a more holistic approach of 'constraint and freedom' (Trigger 1991:551-569). Cultural responses to problems were constrained by tradition, available knowledge, beliefs and values (Trigger 1991:557). The existence of constraints is not seen as deterministic but merely recognizes a limit to the total range of cultural options on which individual and social choice might operate. This approach implies significant roles for human social behaviour in the recognition of options, and the process of decision making relative to those options. Religious beliefs, aesthetics and the search for scientific knowledge were among the social behavioural roles included by Trigger (1989:327). In useful reviews of theoretical debate, James Bell (1994) has stated that what archaeologists are doing is simply looking for better theories or explanations while realizing that ultimate truth is unattainable.

This thesis acknowledges the role that human intentions and motivations contributed to the decision-making process, now marked by a pattern perceived in archaeological remains, and acknowledges that Trigger's (1991) conception of constraint and freedom. The appeal of the approach lies in the concept of cultural variation as an outcome of constrained human decision-making. A description of this variation defines a cultural state at any one time, and changes to it are interpreted as the result of natural selection or adaptation. The synthesis of data to formulate a model of architectural diversity over a long temporal span can still be viewed as a cultural-historical focus, although nevertheless described as an evolutionary continuum. The nature of this approach lies within a theoretical tradition that has been characterized as conservative, "middle-of-the-road," and Canadian (Kelley and Williamson 1996).

As within an ecological framework, there were a multitude of events, factors, and influences, both cultural and non-cultural, pulsing back and forth in many directions through the fur trade. Changes that affected architectural use, re-use, alteration, development, and diversity during the course of the fur trade were probably not always rational changes. Some decisions regarding building function may not have been well-conceived and directed developments, as we might like to perceive from a modern viewpoint, but, nevertheless, resulted in a beneficial adaptation. A cautionary approach is taken to the notion of humans as ideational visionaries, as masters of their fate, because people made mistakes, accidents happened, and some structural innovations were probably mal-adaptive and short-lived.

Trigger's approach (1991) somewhat echoes the historians' recognition that "unrealized potentialities" exist for any historical situation and that "history is always of persons and the plans they make for achieving one goal as opposed to others" (Todd 1972:171). The historian E.H. Carr (1967:113-43, cited in Trigger 1989:319), has observed that "historians agree that individual behaviour is not random and must be viewed in relation to a social and cultural matrix that can be explained, if not predicted, by general rules." The approach of this thesis is to not make *a priori* presumptions regarding sociological rules and cultural context, and applying them to site data, but, rather, to first search for pattern in the archaeological and historical data, then, secondarily, to begin the more elusive search for understanding variability in the data and its causation. The perception that diversity of architectural units increased through time demands, in turn, reflection upon how such a pattern might be explained in terms of previously proposed models of the fur trade.

Fur Trade Models and Interpretations

Fur trade archaeologists have approached architectural remains somewhat familiarly due to the availability of manuscript and published sources, some of which are very detailed. The written journals, diaries, and correspondence have been consulted together with paintings, sketches, photographs, and the archaeological record. This body of information is collectively valued for two important purposes: archaeological dating and anthropological interpretation.

In cases where anthropologically oriented explanations have been pursued, fur trade archaeologists have argued in favour of their interpretations from differing perspectives and opinions. The extent to which one archaeologist's results are found debatable is often in proportion to what another proposes as an adequate development of relationships between archaeological, historical, geographical, temporal, and economic dimensions. Problems have occurred in methodological approaches, affecting both data control and observation. If the methodological foundation is unsound, the reasonableness and acceptability of conclusions are diminished. In attempts to mitigate this problem, archaeologists have adopted different approaches, or models.

The Aboriginal/Traditional Model

This model has gone unrecognized in archaeological literature. The historian Ronald Wright (1992:99) has suggested that aboriginal forts constitute a pre-Columbian pattern that white Americans would copy for the forts they built across the continent. The reference describes a Cherokee village site defended by a stout stockade of tree trunks two feet thick and twelve high, with a gallery, and houses set in streets. Furthermore, the houses were

> rectangular, with pitched roofs of clapboard or bark shingles. The larger ones had two or three rooms. At one end was a fireplace flanked by sleeping platforms covered in bearskins. (Wright 1992:99)

This was not a unique occurrence and similar sites could be found throughout the Cherokee territory. With slight variation, similarly constructed sites were lived in by the Iroquoian Nations and Huron. At Hochelaga, later Montreal, Jacques Cartier "gazed down upon a triple stockade and parapet enclosing fifty longhouses....inhabited by several thousand Mohawks" (Wright 1992:122). Stockaded aboriginal sites have also been mistakenly attributed to European origins, particularly French, as at the excavated Newell Fort in Illinois (Hall 1991:24-28). Thus such sites were known to the French and British from an early date.

This model contrasts directly with the European model, below. The inference of the aboriginal model is that historic forts have aboriginal analogs that probably date to the prehistoric period. The premise is worthy of further exploration, although it is not examined further here because this thesis is not a study in cross-cultural problems, acculturation, or borrowing.

The European and "Vauban" Models

Willard Robinson's study of the architectural forms and functions of American forts expounded an ancestry "widely known in Europe and brought across the ocean by the French, Spaniards and others" (1977:23). Specific comparable examples in Europe were not identified, so the tracing of this lineage is somewhat doubtful. Nevertheless, there were a number of architectural characteristics common to sites of this period. These attributes included a simple square or rectangular fortification with four bastions. Such forts were built by the English around the shores of Hudson Bay, and by the French in their expanding frontier towards the Northwest and the Mississippi. In the case of French sites, the buildings were erected by the *poteaux en* *terre* method. This construction required that narrow trenches be excavated along proposed wall locations and the walls erected by placing poles vertically, side by side in the trenches, which were then backfilled. Structures built in this manner were "lived in by privileged and commoner alike," and "the larger structures generally were associated with high-status artifacts" (Heldman 1991:212).

The suggestion has occasionally been made in archaeological reports that the architecture of forts, whether in stockaded plan or house style, is essentially European in derivation. This assessment may be the result of inherent biases to the extent that the interpretation can be considered ethnocentric. The concept of a widely known model is of interest for a possible application to studies encompassing the colonial experience of several European nations. One thesis, for example, might examine the possible existence of the degree of similarity in architectural features and artifact complexes between colonial frontier forts and sites of the French, English, Portuguese, Spanish, Dutch, and Danish. The European model is, however, vague in definition and without substantial research and modification is inadequate to provide a model for comparison to architectural diversity within and between North American fur trade sites.

Ethnic Model

According to Hamilton (1990:12), the social structure of the fur trade during the eighteenth and early nineteenth centuries was more similar to the society of late medieval Europe than to that in Britain or Lower Canada at a contemporary period. A rigid social structure may have contributed to the entrenchment of social inequality. Why and how such a structure emerged in Rupert's Land was not addressed, but was presumably imported as cultural baggage. Hamilton (1990:28) later indicated that the strong segregation between the *bourgeois* and *engagés* reflected the social reality of nineteenth century Lower Canada. He suggested that a model of military social organization might be usefully compared to the social order of the fur trade (1990:12). Referring to the shared accommodations of Hudson's Bay Company masters and employees, Pyszczyk (1992:38) stated that this social structure resembled the master-servant relationship in Britain during the nineteenth century, providing yet another emphasis on the importance of ethnic origin. The sites he refers to, however - Cumberland House, Hudson House, Manchester House, Buckingham House, Edmonton House and Rocky Mountain House - date from the late eighteenth century. The chronological sequence, instead, indicates that the shared accommodations visible at late eighteenth century Hudson's Bay Company sites began to be replaced by separate dwellings early in the nineteenth century at Edmonton House II, Carlton House, Fort Pelly and Fort Garry. The web of historical relationships leading to the assertions of Hamilton and Pyszczyk have yet to be delineated and correlated to historical events. If the hierarchical social structure outlined by Hamilton and Pyszczyk derived ethnically from medieval Europe, Lower Canada, and Britain, then there must be a fuller delineation and correlation to historical events in order to tie these as causal factors contributing to architectural change, especially in the period of 1780-1821.

Less specifically hierarchical, other social structural approaches have correlated fort construction to ethnic group. Following amalgamation in 1821, and with slight modification, the major architectural characteristics of western fur trade sites came to be regarded as "Manitoba," "Red River frame" or "Hudson Bay style." The ethnologist Marius Barbeau (1945) argued for the Montreal based fur trade introducing an essentially French style of construction, *poteaux sur sole* and *pièce sur pièce* into the Northwest which then became adopted by the Hudson's Bay Company. The principal characteristics consisted of grooved posts set at intervals into a horizontal wall sill with the spaces filled by horizontal tenoned logs. John Rempel (1980:148), an architectural historian, suggests timber framed fur trade structures were also known by the names of "Rocky Mountain Frame" and "Canadian Frame." He was also among the first to trace specific structural details between the old houses of Quebec and western fort sites. He has written that as:

> this method of timber framing moved westward, a 10 foot modulus became more or less the accepted standard. Openings were frequently placed in such a manner that at least one post would also function as a jamb. Heads of doors and windows were generally kept at the same height in order to permit a single timber to function as lintel at the same time." (1980:146)

Jill Wade (1967), an historian, similarly attributed stylistic influences to ethnic traditions modified to suit a different time period and environment. Wade, however, went further in drawing comparisons between the larger Hudson's Bay Company houses and stores, eighteenth century Scottish laird houses, and a Quebecois type of Anglo-Norman house (1967:38-43). Going into deeper detail, Rempel (1980) argued that the major differences in the western development of fur buildings occurred in the foundation, window type and roof framing:

> The forts in the west were a mixture of French walls and English roof trusses. It should also be remarked that the tall side-hung double casement windows, so typical of Quebec and of France, did not survive the journey westward; rather, the Anglo-Dutch double-hung sash was used in the west, with few exceptions. The fur traders in the west also rarely bothered to provide raised foundations...(1980:152)

The ethnic model is not adopted here because of the difficulty of distinguishing the relative influence of various Native groups, the French, English, Scots, and Americans on architecture in what became a multi-cultural enterprise after 1760, and because the focus in this thesis is less on stylistic attributes than functional diversity.

Tordoff's Economic/Distribution Model

In order to carry out an analysis of similarities and differences in material culture among eighteenth century French fur trade sites, Tordoff (1983) developed another model concept. Her review of the historical literature suggested that French sites of the eighteenth century could be categorized as population centres with differing characteristics. Site variation was the result of westerly exploration, missionary activity, the fur trade, and "branching out" (1983:39). Tordoff's groupings of sites resulted in a five-level ranking of sites based on their economies. The levels were hierarchical in their complexity of internal functions. The five levels consisted of Ports of Entry, Government/Economic Centres, Regional Distribution Centres, Local Distribution Centres, and Aboriginal Distribution Centres. She considered the geographical distribution of these centres as widespread and more analogous to Charles Heidenreich's and Arthur Ray's conceptualizations of population islands and trade zones, as opposed to Kenneth Lewis's (1977) depiction of a settlement frontier. Louisbourg was a Port of Entry; Quebec and Montreal were Government/Economic Centres; Detroit, Michilimackinac, Frontenac, Niagara and Fort des Chartres constituted Regional Distribution Centres; Local Distribution Centres included the *Postes du mer de l'ouest,* St. Joseph, Kaministiquia, Michipicoten and Ouiatenon; and the Aboriginal Population Centres were settlements of Indians who participated in the fur trade.

Tordoff's thesis was that a comparison of artifactual remains from sites representing different economic levels in the hierarchy would be patterned accordingly. Specifically, a comparison of archaeological remains from Fort Ouiatenon to those of Michilimackinac would demonstrate variations in artifact categories, and in proportions of artifacts within a common category. Artifactual summaries were then presented with observations on comparisons from one site to another. Comparison of architectural content was limited to artifacts associated with construction; for example, nails, glass, hardware, and bricks. Archaeological remains of the sites' architecture - - the sizes of structures and areas, their function, site layout, and structural diversity - - were not included under Tordoff's approach. Her thesis that the proposed model bore a relationship to archaeologically recovered artifact assemblages was inconclusive (Tordoff 1983:143). This is an example of model development derived from inferences as to the nature of the historical past. Her approach focused on artifacts, not architecture, and was better suited to the analysis of a synchronic state rather than temporal change. This model is not appropriate for adoption because it is keyed to site categories that reflect a problem orientation and focus of data collection different from that proposed here.

Social/Hierarchical Models

The social/hierarchical model was developed to explain perceived architectural distinctions in the archaeological record. The social/hierarchical model is organizational and structural in conception. Forsman (1985), Adams and Lunn (1985), Pyszczyk (1986, 1987, 1992), and Hamilton (1990) have all written of architectural variability as the result of structural/hierarchical or social inequalities.

One study that investigated the relationship between architectural forms, diversity, and yard space allotted to the ranks of employees was carried out at the Hudson's Bay Company's site of Victoria Post, on the North Saskatchewan River (Forsman 1985). The report interpreted observable differences as owing to the nature of the organizational hierarchy, administrative and social distinctions, status, and prestige (1985:80). The relationship between architectural variability and social organization was seen to constitute a good correspondence, but the study was lacking in comparative data, and focused on a relatively brief period of time; that is, it constituted a synchronic rather than a diachronic study.

An analysis of forts in the Athabasca district suggested that architectural differences in rank among and within forts resulted from economically motivated social and political factors in which regional competition played a key role (Pyszczyk 1986:49). Another study suggested that the size of the local trading population, the size of the fort population and the volume of trade carried on were factors in architectural differences in rank between forts, as well as within (Pyszczyk 1987). In a more recent study including the Athabasca and Saskatchewan districts, competition within the organizational structure was seen to have occurred between post officers and this competition led to their divergent access to resources and manpower (1992:37, 40). One social factor identified was that of self-aggrandizement among officers for outward display and status (1992:40). These factors, it was contended, led to changes and improvements in architecture that explained fur trade architectural diversity in Canada from about 1780 to 1900 (1992:32). This temporal frame post-dated the French fur trade experience and the first 20 years of Pedlars' activity.

Hamilton (1990) examined the relationship between variability in the form and layout of fur trade sites and their relationship to social position. He emphasized the role of non-verbal communication to express social inequality supportive of a powerful/weak dichotomy. As with Forsman and Pyszczyk, Hamilton's social structure was seen as responsible for an architectural pattern more widely recognizable. The symbolism implied by architectural variability, then, served to ensure and reinforce hierarchically organized administrative control (Hamilton 1990). Hamilton's study, the broadest in geographical scope, emphasized the years from 1780 to 1821. This period was characterized as one of intense competition, dramatic inland expansion, prolific fort construction, and energetic, exploitive efforts (Hamilton 1990:5). In this context it became more important to communicate distinctions related to power and authority non-verbally. In conclusion he reiterated Pyszczyk, who suggested that company officers used forts as visible exhibits of power and rank (1986:20). The exercise of power through an organizational structure to affect architecture was diminished before and after this period.

The articulation between social structure, the ideology of communication and architectural attributes was complicated by the presence of exceptions, such as at Fort Garry and Fort Edmonton. At these sites exceptions were made for "house servants" to live in the factors' houses (Pyszczyk 1992:40n). At Fort Garry, an important pemmican post built originally by John MacDonald of Garth as Fort Gibralter, Alexander Ross made the observation in 1825 that it was built without

> any regard to taste or even comfort....These buildings, according to the custom of the country, were used as dwellings and warehouses for the carrying on of the trade of the place. Nor was the Governor's residence anything more in outward appearance than the cottage of a humble farmer, who might be able to spend fifty pounds a year. (1855:II. 260)

Similar observations can be made on still other sites, such as the elder Alexander Henry's Michipicoten, off Lake Superior, and François LeBlanc and James Finlay's House on the Saskatchewan, and the forts of Pierre la Vérendrye, Samuel Hearne, William Tomison, Peter Fidler and David Thompson. All of these individuals were fur trade luminaries, most of their sites were economically profitable, and some forts had large complements of men, but there is little documentation for the development of social distance, display, power, and changing architectural diversity. John Sayer, for example, was a senior North West Company officer who occupied a fort in the Folle Avoine Department southwest of Lake Superior; a fort described as disproportionately small relative to his political influence. This exception has been explained by reference to his indebtedness for trade goods, and the diminishing importance of his role (Hamilton 1990:108). What explanations are to be invoked, however, for all of the other cases that also do not appear to conform to the formula of "big men" equals "big houses" (Pyszczyk 1986:29-51)?

Although the social-structural approach has considerable appeal, there has been some failure to accommodate alternative, possibly broader explanations. It is possible, for example, that architectural differences among sites had something to do with culture change, the nature of local conditions, differentially utilized resources, an attempt at economy by building for structural longevity, building for a projected requirement for increased capacity, or yet other reasons. All these options need to be integrated with concepts of intention and decision-making. The second Fort Garry, located at the confluence of the Assiniboine and Red Rivers and severely damaged by flooding in 1826, is presented here as an example. As late as 1828 (Wolk 1982), old houses were still being dismantled and new ones erected in a continual process of maintenance and reconstruction. George Simpson, governor of the Hudson's Bay Company's trading territories in North America since 1826, decided that a new fort, Lower Fort Garry, should be constructed farther downstream as the old site was "much exposed to the Spring floods and very inconvenient in regard to the navigation of the River and in other points..." (Oliver 1914:648). The new fort was to be constructed with stone and mortar as these were materials to be found on the spot, were cheaper and more durable than timber (Oliver 1914:648). The historian Dale Miquelon (1970:11-13) acknowledged concerns for transportation and safety but suggested that Simpson had ulterior motives in promoting this change. These included an intent to improve the agricultural economy of the settlement, the establishment of a gubernatorial residency to enhance the Hudson's Bay Company's prestige and its/his influence in the community, and a desire to shield his young bride from mixed-blood society that included his own offspring by earlier country marriage. The primary documentation, then, put forward a simple economic explanation for the construction of Lower Fort Garry, but archaeologists and historians might attribute the construction to an expression of Simpson's personal role and status. The dichotomous explanations contend for primacy, but more appealing is the probability that diverse points of view jointly contribute insights that may be accommodated outside of theoretical frameworks that appear exclusively economic or social/hierarchical.

Social/hierarchical models have portrayed architectural change as subject to a changing social and economic milieu (Pyszczyk 1992; Hamilton 1990). The model emphasizes a corporate system wherein individuals tend to lose their identity and individualism. Within fur trade society the relationship of individual members is explained in terms of their relationship to the organizational structure. The organizational structure had a material correlate in architectural diversity and form. The perception of architectural order, in turn, verified the social hierarchy. The argument is circular and does not reveal chronological patterns that may be analyzed in the search for the explanation of change. Although the social/hierarchical models described above are complex in the number of social, cultural and economic variables included, they also tend to be static. They are complex because they can only be used *post-hoc* to explain why a site had a particular architectural diversity, location, size, population and economic role. Forsman and Pyszczyk have employed terms such as prestige, ethnicity, status, rank, and self-aggrandizement, as well as economics, to which Hamilton added signaling, or non-verbal communication of authority and power. Overall, the social/hierarchical model in relation to explaining architectural change is a more synchronic than diachronic approach. It is an approach that and does not readily admit alternative possibilities for change, and these reasons are sufficient for non-adoption of this model.

Keene's Settlement/Land Use Model

Keene (1991:35) identified shortcomings in Tordoff's hierarchical model as it related to providing an adequate explanation of inter-site artifactual variability. This observation also applied to architectural studies. Keene proceeded to develop an alternative model also based on economic activity. He distinguished between largely extractive resource sites and those which functioned as a result of agricultural production. Forts and sites with extractive economies had a large portion of their population engaged in fisheries or the fur trade, for example. Differences between the two types of sites were to be seen in different patterns of residence. Towns with different economies, Louisbourg and Michilimackinac, for example, might have had similar settlement patterns as both were based on extractive economic activity. Fort de Chartres would have a different settlement pattern because it was a seat of government regulating agricultural production in a mercantile economy. As a consequence of these basic functional distinctions, the internal residential structure of even widely separated sites would be similar if they shared the same functional category. Fort de Chartres and Fort Royal were widely separated but would be more similar to each other than Fort de Chartres to Michilimackinac (Keene 1991:37-40). Along with Fort de Chartres, Fort Massac represented another category of activity, the French colonial military site (Walthall 1991:42). The application of this model sought to examine differences and similarities among sites based on their economic mode of production. One of the shortcomings of Keene's model, as far as this study is concerned, is that such a small sample of sites was available that little confidence could be had in any perceived settlement pattern differences. Furthermore, the focus was on differences between sites of different economies rather than sites of all one economy, as in this thesis.

In a modification of Keene's settlement/land-use model, essentially an economic approach, distinctions among fur trade sites might discriminate the precise functional nature of each site. On this issue, archaeological site categorization would have to rely on the interpretation of archival and historic material. Site function is not one that was clearly prescribed throughout the fur trade and the terms employed are frequently ambiguous. Smythe's framework (1968) included wintering post, outpost, trading post, provision post, depot, principal depot, and portage post, as well as combinations of terms to refer to any one site. Hamilton (1990) worked with a structure that included administrative posts, regional headquarters and wintering outposts. There has been no universal consensus on how to categorize sites without overlap and ambiguity. The creation of such a model, at this time, would first depend upon a broad analysis of the use of these terms in the literature, the development of criteria, and the acquisition of data relevant to the assignment of each site to any one category. This approach is rejected because it emphasizes the analysis of site function over site architecture. It is probably true that the two are related, but more factors other than architecture play a role in site function, and the determination and study of these functionally-related factors should be the subject of a different study. The emphasis here is on accepting all fur trade sites as an archaeological manifestation of a single economy, with a focus on a search for the discovery of patterns within architecturally related variables.

Conclusions: Development of a Model of Architectural Diversity

The utility of the model concept is conveyed by the above examples from trade studies. Those above served different purposes with varying degrees of success. The use of models indicates a theoretical orientation that seeks methods to conceptualize and explain complex reality more easily. Through this approach one hopes to accommodate intrinsic cultural motivations and traditions as well as external ecological and systemic constraints, even if these factors are not all identified or described in detail. The construction of models can be approached from two directions - from the perspective of insights as to nature of a set of historical events, conditions, and human behaviour that serve to propose or define contextual models *a priori* to data analysis, such as Tordoff's economic/distribution model (1983), Hamilton's power/communication model (1990), and Keene's settlement/land use model (1991); or, from perceptions of a pattern within the archaeological and historical data that can then be explored and tested, as a model, in the search for explanation. Examples of the latter approach were represented by the recognition of pattern in timber construction details attributed to French ethnicity (Barbeau 1945, Rempel 1980), the perception of pattern in the sizes of officer's dwellings that could be explained relative to personal ambition and prestige values (Pyszczyk 1986, 1992), and the model of content and range in fur trade artifact assemblages synthesized as the Early Fur Trade Artifact Pattern (Forsman 1983). The latter approach, that is, the recognition of patterning in the archaeological record as an avenue to comparative study, problem identification, and the search for explanation, is still current (Thurman 1998:46), and best describes the approach used in this thesis.

The organization of information relevant to any one topic can contribute to the development of a model for that subject. A model, in this thesis, constitutes a descriptive or informative device to elucidate a trend, or lack of trend, across space and through time for the frequency in occurrence of any single group of fairly empirical archaeological and historical site data. Models not only serve as descriptive tools but also provide a guide to further analysis. Comparison of one model to another is an important avenue to exploring relationships among different phenomena. The number of differential architectural structures per site, through time, for the North American-based companies compared to that for the Hudson's Bay Company is offered as an example. The recognition of differences might be unclear because of the wide range of variation in data for the two groups. When the data are subjected to mathematical analysis, graphically fitted lines enable clearer observation, comparison, and reflection. A number of such graphs and discussion of their linkage, individually and collectively, constitute the descriptive and analytical core of this thesis.

Although a generalized Model of Fur Trade Architectural Diversity is proposed at one level of the thesis, secondary-level models are based on perceived distinctions between two groups of competitors, those that are North American-based companies, and the London-based Hudson's Bay Company. My acceptance of this framework recognizes competition as an economic activity, and that it probably has a long-term relationship to architectural diversity and various infrastructure characteristics. I recognize the role of economic competition as having potential implications for the study of expansion into new trade territory, rates of fort construction, site size, and size of the employed site population. This inter-relatedness of features provides unity to the search for patterns over a long period of time. Observation and discussion of similarities and differences between competitors are undertaken and leads to the search for explanation that runs a risk of *post-hoc* accommodative argument. Regardless of the explanations for the patterns revealed here, all are models of the many dynamic contributions of individuals and groups of people affecting economic decision-making and the building of forts.

Chapter 3

METHOD DEVELOPMENT

The concept of fort design does not imply that all were constructed according to directions and approval by higher authority. Forts, rather, were constructed pretty much on an *ad hoc* basis by men of the fur brigade arriving at a site chosen in the Fall during the voyage inland, or by a small summer work party that had remained inland for that purpose. Among the variables were different geographical locations and resources, size of the construction force, and differences in human values, abilities and expectations. In the absence of standard architectural plans, each fur trade site varied somewhat from every other. A summary of archaeological and historical data forms a background to this architecture, which may be termed 'vernacular.' Problems in the resolution of diversity as a primary variable are discussed and, in the concluding section of this chapter, I propose a framework for controlling architectural variability. In the following chapter, as a extension into specific difficulties of methodological development, discussion of the provision store provides an in-depth example of an increase in architectural diversity.

Archaeological and Historical Summary of Fur Trade Architecture

Archaeologists and historians have examined aspects of fur trade architecture in attempts to gain an understanding of its origins, nature and diversity. The discovery of archaeological remains of fur forts in the west began even during the fur trade era. In the course of constructing Fort McMurray for the Hudson's Bay Company in the summer of 1870, Henry Moberly (Moberly and Cameron 1929:142) exposed the remains of a fur post dating to about 1784. In the late nineteenth and early twentieth centuries, the Historical Society of St. Boniface, Manitoba, sponsored expeditions to rediscover sites related to French exploration in the Lake of the Woods area, culminating in some excavation and recording of Fort St. Charles (Prud'homme 1916). J. B. Tyrrell and Arthur S. Morton (for example Stewart 1930:38; Morton 1943) visited numerous western fur trade sites and, as if conducting archaeological surveys, recorded observations, took photographs, and sketched ground plans.

By the middle of the twentieth century sporadic test excavations were being carried out on a range of sites. Pine Fort in Manitoba was investigated by Vickers (1949). In Alberta, the Rocky Mountain House sites were surveyed in 1958, and archaeological testing and excavations undertaken there in 1962 and 1963 (Noble 1973). Important archaeological fur trade investigations began in Saskatchewan in 1963 with Kehoe's (1978) work on an early Pedlars post, LeBlanc/Finlay's House. More detailed archaeological excavations and recording in Manitoba were renewed at the Pine Fort site beginning in 1968 (Mackie 1971; Tottle 1981).

Determination of techniques used in the construction of building foundations has been one object of research related to both tradition and diversity. There has been an increasing awareness of the importance of the *poteaux en terre* or *peaux en terre* in the early fur trade of the Northwest and its gradual replacement (Babcock 1977, Forsman 1990). Still other studies have had a singular focus directed towards examination of construction details (Barbeau 1945; Garth 1947; Wade 1967; Richardson 1973; Rempel 1980). The narrow scope of these studies, however, together with flaws in their analyses resulted in interpretations that historians have been reluctant to utilize for more than simplistic generalizations (e.g., Pannekoek 1987:15).

In the case of the French, a hierarchical structure among forts is not clearly defineable. Michilimackinac was clearly a major depot and clearing house for expeditions to the southwest, west, and northwest. Among the *Postes de la mer de l'ouest,* Fort St. Charles, Fort Maurepas, and Fort de la Reine may have served as regional headquarters at different times, but the particular nature of their roles remains unclear. According to Eccles (1983), increasing hostility of the Iroquois towards the French in the 1680s gradually led to changes in the character of the complement at French fur trade posts. The Iroquois aggressiveness had not been adequately anticipated and the French colony was in a weak military position. This threat developed at a time when Jean-Baptiste Colbert's responsibility for the Canadian colony was being replaced, and the governor general Comte de Frontenac recalled. In the absence of strong support from the home government, the best that le Barre, Frontenac's replacement, could do was to disperse military contingents to the western posts. Although some French posts had military contingents before 1683, from this time on they had military complements that, to greater or lesser degree, became involved in the fur trade (Eccles 1984:116). From this history one may infer that military officers engaged in the establishment of new posts exercised some influence on the architectural character of those posts. Although the construct seems well-reasoned, hierarchical structure within the French fort sites is difficult to determine.

Most of the correspondence and journal reports indicate that the military figures provided security and a political presence. The business of the fur trade was no less important commercially, but was commanded by clerks and traders who left little documentation (Burpee 1927:235).

A number of French fur trade sites about which some structural information is known include Martinière's Fort on the Hayes River, Lac Chamouchouane located southwest of James Bay, Fort Vaudreuil in the Mississippi basin, Forts St. Pierre and St. Charles in the lake district west of Superior, four small sites on the Ottawa-Mattawa fur trade route, another at Sault Ste. Marie, de la Reine on the Assiniboine River, and Paskoyac on the Saskatchewan River. Michilimackinac is also included. A selection of these and other sites provide an example of the data base from which architectural information is derived.

Martinière's Fort, 1684-85, was situated on French Creek, near the mouth of the Hayes River. Father Silvy recorded the site as consisting of "*3 maisons, et un fort de pieux deffendu par 2 bastions et un angle saillant*" (Tyrrell 1931:90). At Lac Chamouchouane, two structures were reported: a house and a store, apparently for goods and trading (Francis and Morantz 1983:37). Fort Vaudreuil has been described as a walled fort enclosing four houses and a storehouse (Birk 1991:155). Fort St. Pierre on Lac de Tekamamiouen (later Lac la Pluie, and now Rainy Lake) was a small stockaded post described by the Marquis de Beauharnois in 1733 as follows,

> *Il y ... un fort qui a deux portes opposées: le costé intérieur a 50. pieds avec deux bastions. Il y a deux corps de Bâtimens composés de 2. chambres à doubles cheminées: .... L'on a pratiqué dans un des bastions un magazin et une poudriere.*(Burpee 1927:102, 103)

Fort St. Charles, situated on Lake of the Woods and the major post in the west, was described extensively by Beauharnois, and was also recorded by Father Alneau. Beauharnois indicated that,

> *le costé intérieur de ce fort a 100 pieds avec 4 bastions. Il y a une maison pour le Missionaire, une Eglise, une autre maison pour le Commandant, 4. corps de bâtiment à cheminées, une poudrière et un magazin. Il y a aussy deux portes opposées, et une guéritte; et les pieux sont doublés et ont 15 pieds hors de terre.* (Burpee 1927:102,103)

Subsequent to the defeat of New France, renewal of the fur trade was characterized by increasingly active involvement by Anglo-American, English and

Highland Scots merchants, suppliers, agents and 'Pedlars.' As individuals and small partnerships, these entrepreneurs relied extensively on the experience of French personnel and traditions, including both merchants and *engagés* (Burpee 1908a:119; Innis 1970:190; Morton 1939:277, 278; Tyrrell 1934:121,122, 159, 353, 354; Wallace 1934:40; 1954:6).

The assumption of control in the fur trade by independent traders heralded a brief period of small entrepreneurships. Regulations that controlled trade to the interior were administrated by the British military at Michilimackinac, but only until 1768. After this date, additional independent traders rapidly augmented the inward flow of goods. Competition pitted trader against trader with unpredictable economic consequences. Traders independently chose locations for their houses of trade, whether or not these were to be in isolation or banded together within a common stockade, as at Sturgeon fort on the Saskatchewan River. Through the 1760s and 1770s, then, forts may be said to have operated within a non-hierarchical framework.

The development of hierarchically organized forts appears to have coincided with amalgamations of partnerships and small companies leading to formation of the North West Company. At the pinnacle of the hierarchy was the regional supply depot and headquarters. These carried out a number of functions including fur trading, provisioning, and the redistribution of trade goods. District posts are seen as larger and more permanent than wintering posts, and occupied by a factor, bourgeois or shareholders of the company. The wintering post was open during the winter fur trading season and closed during the summer. The hierarchical structure of the fur trade in terms of depots, district posts, and wintering posts, as these relate to fort architecture has yet to be subjected to fuller analysis and generalization on a broad scale. Brief examples of problems to be resolved are presented below.

A standard generalization is that wintering posts were small and unoccupied during the summer. On 22 July 1754 Anthony Henday arrived at a French House, Basquea, on the Saskatchewan River, where he found two men spending the summer, the other inhabitants having departed with the season's furs (HBCA B.239/a/40; E.2/11). On 20 June 1776, Edward Jarvis noted that six men were present along with a large quantity of furs at Michipicoten, although the 'Masters' were not there as "neither of them constantly reside at the Houses" (Hamilton 1990:125, citing HBCA B.86/a/29). The obvious inference is that some people resided there year-round. The masters and some of their men had probably departed by this date to Grand Portage or

Michilimackinac. These sites were small and should qualify as wintering posts except for their summer occupancy. Elsewhere, a large site such as Rocky Mountain House might be abandoned during the summer when other, smaller posts, such as Victoria Post and Fort Pitt, remained open. Even at large sites, the size of summer complements was frequently small. At Mackenzie's Fort Fork, erected in 1792, sufficient timber was collected to form a palisade of 120 feet by 120 feet, but out of a winter complement of about 24 men, only two remained over the following summer (Mackenzie 1971:152). The variables of seasonal residency, demography, site size, and architectural diversity have yet to be articulated in a general study of hierarchical site functions.

Even the distinction among forts, houses and posts is unclear and needs to be studied in any discussion of a hierarchical fort structure. This confusion begins with the historical record. When the Montreal-based English fur trade advanced into the west it consisted of increasingly active involvement by Anglo-American, English and Highland Scots merchants as suppliers, agents and 'Pedlars'. In 1776 when the Pedlar Frobisher stopped at Cumberland House, he told the Hudson's Bay Company master there that "he had left Primo and seven other men to build a house (tho calld by him a Fort)" (Tyrrell 1934:190). Many of the first Hudson's Bay Company sites were called houses, *viz.*, Cumberland House, Hudson House, Manchester House, Edmonton House. When Hearne established Cumberland House in 1774, there was no specific reference regarding intentions to construct anything more than a "House" (Tyrrell 1934:97). After Hearne finally chose a site location he selected one spot for a temporary "Logg Tent" and another for a later "Proper house" (Tyrrell 1934:115-125). Roderick Mackenzie, however, wrote that a fort "is the name given to any establishment in this country" (1971:18).

Problems and Solutions in Method Development

Review of the archaeological and historical literature suggests that there is less than an adequate description and synthesis of architectural diversity. Architectural components of fur trade sites must be generalized, then sorted according to their major competitive identities, and analyzed from the perspective of determining qualitative and quantitative change temporally. One component of the Model of Fur Trade Architectural Diversity includes exploration of the rate of spread, or expansion, as indicated by site distribution and settlement pattern across space and through time. Others include the rate of fort construction, the size of forts, their demography, and a consideration of economic competition. Analysis, therefore, will have the objective of evaluating the relationships among variables as they are presented in the thesis. The quantification of facts into statistical sets is expected to facilitate the identification of previously unrecognized patterns. It is anticipated that patterning will be readily apparent, and that questions of explanatory power and significance will not arise. If, however, such problems become manifest, then statistical tests may have to be applied. Following discussion at this more abstract level, suggestions will be offered for application of the approach to future fur trade research and to other topical problems in archaeology.

In the organization of data in this thesis, information contained in records can be collected for comparative and analytical purposes. Given the geographical extent of the study area, and the lengthy temporal span, the total population of fur trade sites is large. The total population of sites, however, is unknown, and epitomizes a situation wherein all available data are therefore the sample. Sampling on the basis of availability is termed "haphazard" (Zeller and Carmichael 1978:187). The use of haphazard sampling in archaeological studies is justified in the creation of essentially descriptive models (Doran and Hodson 1975:96). These models, patterns or profiles may be compared one to another. Single variable information is first tabulated to present that data visually on a chart or graph along with a linear curve fitted. The resulting curve may then be observed to assess whether or not change is discernible. Change observed in the range of variation of architectural diversity through time may then be examined in terms of relationships to historical elements (events, personalities, and trends).

In the research behind this thesis, the available historical and archaeological documentation has been reviewed with the objective of extracting fur trade information with good chronological control. Attention was given to activities and features related to human perceptions of architectural diversity, the distribution of sites across the landscape, site sizes, site population, and available economic characteristics of the fur trade. It was found that the quality of architectural plans, sketches and structural references, as well as the other fields of data may require critical appraisal.

The absence of rigidly defined architectural conventions further contributes to the problem of reducing subjective data to the medium of quantification. There is a tendency in fur trade archaeological practice to assign building function without first having established criteria for the identification of each structural category. The desirability of establishing building function is that classification facilitates generalized interpretation. An almost comprehensive utilization of fur trade archaeological and historical data is desirable. With this approach, one site is of equal value to any other, negating any need for explanations of sites not to be included among the data used for fitting a curve.

Chronological control is important when studies encompass a broad geographical area. It is acceptable in the models being developed here to incorporate data pertaining to archaeological remains and historic data from Fort Michilimackinac and Fort Vancouver, provided control over the data is maintained in some dimension. The French never had any fur trading establishments on the Pacific coast, the two sites mentioned are broadly separated in time, and they are associated with distinct national traditions and different ethnic backgrounds. Nevertheless, common data values and a common temporal scale are sufficient for general control. In the investigation of architectural diversity the study need not be delimited geographically by the extent of French fur trade influence, unless the interest is specific to the French period alone.

There are some semantic difficulties with regard to the use of different words for the same architectural unit. This problem occurs both in primary documentation and also in the choice of terms used by both archaeologists and historians. In order to present the scope of this problem, examples are given below. The study of defensive structures is more detailed than subsequent architectural definitions but serves to illustrate the scrutiny to which architectural terms may be subjected. This examination leads to the development of a categorical framework for the recognition of architectural diversity.

At Fort St. Jean, a French fort, the early traveller Peter Kalm wrote,

> Between these houses are the poles, two fathoms and a half high, sharpened at the top and driven into the ground close to one another...Lower down the palisades are double, one row within the other. For the convenience of the soldiers, a broad elevated platform of more than two yards in height is made in the inside of the fort all along the palisades, with a balustrade. (Benson 1964:397,559)

The French similarly used palisade at the fur trade centre of Fort Michilimackinac (Gérin-Lajoie 1976:6, citing Lotbinière). Farther west, at Fort St. Pierre and Fort St. Charles, the surrounding defensive wall is referred to as "*les pieux...doublés*". (Burpee

1927:103). The French were not the only ones to use "palisade," although its continued use may be more reflective of linguistic retention. Following the defeat of the French regime and the active resumption of the western fur trade, a fort was constructed at Grand Portage and there,

> the houses are surrounded by palisades, which are about eighteen inches in diameter, and are sunk nearly three feet in the ground, and rise about fifteen feet above it." (Mackenzie 1971:xlii - xliv)

Mackenzie (1971:129) was consistent in his use of palisades. At Fort George on the North Saskatchewan River, Duncan M'Gillivray in his journal of 1794-95 used "piquets," another French term, to describe the surrounding defensive wall (Morton 1929:65). John MacDonald of Garth used the translation "picketed" (NAC:MG 19/A 17). Similarly, John Macdonell in 1793 described a Rainy Lake fort where the buildings were "protected by strong picketing and heavy gates" (Bigsby 1969:271-3). In contrast to M'Gillivray, McDonald used "stockades" for Fort George, (Masson 1889-90:I:2). He again used "stockades" in reference to Chesterfield House on the South Saskatchewan River, and to Fort Astoria on the Columbia River (Masson 1889-90:I:30, 50). Alexander Henry the elder, and later, Alexander Henry the Younger referred to "stockades" in describing a number of fur trading forts (Bain 1969:319; Gough 1988; Coues 1897).

Other travelers and writers did not describe fort enclosures with a high degree of regularity, sometimes using "stockades", "pickets" and "palisade". Jonathan Carver at Michilimackinac in 1768, stated that it is a "Fort composed of a strong stockade" (Carver 1974:18), whereas the French had previously used "palisade" (Gérin-Lajoie 1976). Fort Franklin, used in Arctic exploring expeditions, was "inclosed by the stockading of the original fort" (Franklin 1971:52). Paul Kane, the artist, refers to the "pickets of the fort" at Edmonton House, and Fort Vancouver as "surrounded by strong pickets" (Kane 1968:93, 117). Rocky Mountain House, according to Dr. Hector, with the Palliser expedition, was surrounded by a "palisade" (Dempsey 1973:32). The Reverend George M. Grant, secretary to Sandford Fleming's 1872 expedition across Canada, referred to "stockades" at Fort Frances (1970:46).

The use of terms for defensive enclosures used by Hudson's Bay Company personnel is not entirely consistent although stockade was preferred. James Sutherland, who travelled up the Assiniboine River in 1796, referred to Pine Fort as having "palisades" (HBCA B.22/a/4/11a). In 1773, Matthew Cocking used the term

"Stockades" to describe a small post established by James Finlay and François LeBlanc (Burpee 1908a:118). At Cumberland House in 1775, he again used the same term (Rich 1951:23). William Tomison, who was responsible for establishing several posts, used "stockades" repeatedly in his journals (Rich 1952:75; HBCA B. 24/a/1; Johnson 1967). Other Hudson's Bay Company employees who used 'stockades' as a descriptive term can be listed as a 'Who's who' of the fur trade during the nineteenth century. Far from comprehensive, this list includes Robert Longmoor, Henry Hallett, James Bird, Peter Fidler, George Simpson, William Tomison, Isaac Cowie, and Henry Moberly (HBCA B.121/a/1; B.24/a/6; B.27/a/1, Johnson 1967:274, Rich 1938:44; Cowie 1993:210; Moberly 1929:35). The consistency with which fur trade documents of the nineteenth century used stockade is striking, and could be expected to lead to a similar consistency in subsequent archaeological and historical documentation.

During the twentieth century archaeologists and historians have contributed to an entrenchment of confusion in meaning by referring to "palisades" and "stockades" synonymously. In an early work of fur trade archaeology, Noble's report of excavations at Rocky Mountain House in 1963 referred to "palisades" (1973). Descriptions of subsequent excavations at this site and others, particularly in Alberta and nearby western regions also preferred to use this term (Kidd 1970; Losey 1978; Nicks and Hurlbert 1977; Losey and Pyszczyk 1979, Losey and Kerpan 1980; Steer *et al.* 1979; Steer and Rogers 1978; Klimko 1983; Forsman 1985; Nesbitt 1987). This use has been found to occur in reference to sites as distant as Fort Langley in the west and Fort William and Michilimackinac in the east (Chism 1970; Kleinfelder and Taylor 1972; Heldman and Minnerly 1975:11). "Palisade" and "stockade" occur synonymously within a number of site reports, as does "stockade" and "pickets." Among these are excavation reports from Fort Colville and Spokane House in the far west, east to Fort Union and Grand Portage, and sites on the northern Plains (Chance 1972; Combes 1964:52; Peterson and Hunt 1990; Thompson 1969:30; Ranere 1967a, b; Nicks 1969:37-39). The examples in which "stockade" was used include Michilimackinac and Sandy Lake in the east, Pine Fort and Rivière Tremblante on the Assiniboine River, Sturgeon Fort, François House and Hudson House, and Astor Fort Okanogan on the Okanogan River (Maxwell and Binford 1961; Stone 1974; Hart 1926:321; Tottle 1981:40; Mackie 1968; Barka and Barka 1976:47; Kehoe 1978; Clark 1969:28, Grabert 1968). As an alternative to "palisade" or "stockade," less specific terms such as "inclosure" and "perimeter fortifications" are occasionally seen (Grant

1970:132; Birk 1991 :259). In all of these studies, the use of the diverse terms is without definition or distinction.

As with archaeologists, historians have frequently used the terms palisade and stockade synonymously, rather than to describe different kinds of architecture or to reflect the historical context of their use. Antoine Champagne (1971:7) follows La Vérendrye and the French tradition of using "palissade." Leslie Hurt (1979:75) uses "pallisade" in describing fortifications at the Hudson's Bay Company's Victoria Post dating more than a century later. In a presentation of the history of Rocky Mountain House, Dempsey (1973:31, 32) uses "palisade." Smyth (1976:73), in describing the sequence of sites at Rocky Mountain House generally uses "palisades," and occasionally "stockades." In addition to site reports and structural histories, popular historical overviews, such as *Caesars of the Wilderness* (1987) by Newman, and an entry in *The Canadian Encyclopedia* (Rothrock and MacKinnon 1985:679) also use palisade. Stockade, however, is the preferred word choice among many historians in reference to fortifications that post-date the French period (Babcock 1990.; Johnson 1967:xxxi; Nute 1987:77; Parker 1987:41; Stewart 1930:8; Wolk 1982:28).

Willard Robinson (1977:15, n. 2), a writer on fortifications, noted a distinction between palisades and stockades. He stated that "Palisades consist of pales spaced six to eight inches apart, while stockades are timber walls constructed from logs placed tightly together." As the timbers of all of the sites excavated archaeologically and reported historically were placed close together, the defensive curtain, according to Robinson, should more properly be termed a stockade. This usage is consistent with the meaning of the term through most of the nineteenth century. The variety of published and unpublished materials that refer to defensive walls around forts could constrain the making of generalizations by fracturing tabular data into more categories than necessary. It is not always clear what an author intended. One should, instead, refer to a generalized architectural unit such as "fort enclosure." The diverse terms for this unit incorporate "perimeter fortifications," "pickets," "palisade," "stockade," "walls," "*pieux*," "bastions," and "watch houses." A defensive enclosure at a site may be counted as one architectural unit. Sites not surrounded by a stockade would not be accorded representation in the defensive enclosure category.

The terms "*bourgeois'* house," "officer's dwelling," "master's house," or "factor's house", in historic documents and archaeological reports refer to a discrete structure in which the controlling administrative officer resided. Multiple terms may refer to the same category of structure, not just at different, separate sites, but at a single location. At Fort Chipewyan the terms "Bourgeois New Dwelling House," "McFarlanes' New House," Officer's Dwelling," "Factor's House," and "boss' house" are all found in historic documentation but refer to a single structure (HBCA B.39/a/48-56).

Still other generalized terms may be applied to the broad range of structures related to specific work activities ranging from brick kilns to warehouses, and to subsistence related structures from barns to stables. Indefinite functional distinctions are sometimes appear in the archaeological literature, with buildings simply labeled as "1" and "2," or "A" and "B" (Janes 1974; Tottle 1981; Hamilton 1986). In these instances categorization is more difficult, and depends upon a subjective judgment made on the basis of what is interpreted or otherwise implied in the archaeologist's report.

Archaeologists who have worked at sites of longer occupations occasionally encounter evidence for the dismantling of structures and the erection of new buildings. The reported functions of these structures are not always consistent from one construction phase to another. The dates of construction, the identification of structures, and time periods for the various sites and buildings are accepted, accordingly, as given by archaeologists. Similarly, different archaeologists who have worked on the same site, at different times, have occasionally reached different conclusions regarding the structures found there. At the Finlay site on the Saskatchewan River, for example, Kehoe (1978:10-56) recorded architectural remains of a stockade and a three-roomed structure, but Klimko (personal communication) reported no stockade and a four-roomed house. Fortunately these instances were infrequent but nevertheless required a selective judgment. Two alternatives may be considered, each with shortcomings. One possibility is to average the findings of each archaeologist, a process which implies that both are incorrect in their judgment, and ignores the possibility that two sequentially distinct occupations are being described. The second alternative is to consider that both archaeologists may be correct and that multiple occupations are present and might therefore be enumerated separately. The disadvantage here is that rebuilding phases may not actually be present and that counting of structures at the site twice will unfairly skew a statistical construct. Most statistical techniques have sufficient power to accommodate small errors depending upon the sample size. The preferred data sources consist of maps, plans, sketches, or clearly enumerative and narrative site descriptions.

In this thesis, architectural variability is recognized as occurring among six basic groups. The major architectural groupings are organized as follows, each with a listing of commonly used terms:

1. **Fort Enclosure:** This unit includes the diverse terms perimeter fortifications, pickets, palisade, stockade, walls, *pieux*, bastions, watch houses and blockhouses. Watch houses or blockhouses reported as freestanding and unconnected to a stockade may be enumerated separately.

2. **Religious Structures:** Refers to church, chapel, mission house and priest's house.

3. **Organizational and Management Structures:** This category includes accounting house, office, commissary, Great Hall, Committee house, hospital, guardhouse, prison, and a kitchen or cook room that may be considered separate or distinct from any other building, and an observation platform or lookout. Military structures such as a commanding officer's house, garrison officer's dwelling, guardhouse and soldiers' barracks are recognized as other sub-divisions of organizational and management structures.

4. **Residential Structures:** Residential structures may be further divided into four sub-categories:

   Officer's House: Officers' houses are those dwellings in which the person(s) in charge of the district and/or post reside. These are variously recorded in the literature as Bourgeois house, big house, boss' house, Factor's house, 'Large' house, and master's house. When a military commanding officer was resident at the fort and was responsible for the regulation of the fur trade, the structure wherein his duties were performed may be shared under the Organization and Management Structures group with the military sub-category.

   Clerk's House: Clerks' houses and rooms were present at some sites as a level of occupational distinction between that of chief officer and tradesman/labourer.

   Men's Houses: Includes unspecified residency given as 'houses' and 'cabins', living area, men's apartments, men's houses, rooms, row houses, and servant's houses.

   Specialized Houses: This sub-category includes any structure to accommodate the farm manager, fishermen, guides, interpreters, miller, stableman, blacksmith, and any other specialized and trades personnel.

5. **Industrial and Specialized Structures:** These structures are divided into three sub-categories:

> Commercial Activity: This sub-category includes any structure or part of a structure assigned as trading store, shop, trade goods exchange, Indian shop, and retail sales.
>
> Industrial and Other Activity: Includes blacksmith shop, brewery, brick kiln, carpenter's structure, cooperage, distillery, forge, lookout, malt kiln, tinsmith, grist mill, sawmill, malt kiln, troop canteen, and workshop.
>
> Storage and Maintenance Structures: Includes beer cellar, canoe shed or house, boat shed, dock shed, dry goods store, fur store, hardware store, malt barn, merchandise store, pack store, powder magazine or house, privy or latrine, shed, store, tool house, and warehouse.

6. **Subsistence Structures:** These are divided into two sub-categories:

> Animal Shelters and Food Processing: Includes barn, byre, cattle and sheep house, dairy, horse stable, cow stable, and ox stable, smokehouse, ovens.
>
> Storage: Includes fish house, flour store, hangard, provisions store, provisions cache pit, root house.

Archaeological and historical ambiguities that complicate the counting of structures at sites are rationalized. Each architectural category is given an ordinal or frequency value based on the number of discrete structures. In the absence of building separateness, categorization is achieved by fractions. Thus where a partition is recognized within a structure that separates a store room from a bedroom, an ordinal value of 0.5 may be accorded to the appropriate architectural categories. On the other hand, when a trade store and a fur store are mentioned at a site, but without any indication of separation, discreteness is assumed and the respective categories each given an ordinal value of 1.0.

The concept of kitchen offers an example of where it is sometimes difficult to recognize a discrete architectural unit. The necessity of cooking meals occurred at all sites but food preparation may easily have been carried out in a room used for other purposes or been confined to a designated room within a structure. A kitchen may also have existed as a structure separate from any other building. In some cases a kitchen was connected to a residential structure by a covered passageway. The kitchen also occurred as a shed-like structure attached to the side of a house. Such ranges of discreteness are accommodated by according the kitchen a frequency value of one, whether or not it is free-standing, connected, or attached to any other structure. If, however, it is contained as a simple room within a structure containing yet other functionally distinct rooms, a fractional value is assigned based on the proportion of the structure used for that purpose. A similar enumerative method is used for other secondary structures such as attached sheds and lean-tos that might cover a forge, blacksmith shop or other functionally distinct activity. Wells, privies, flag staffs and fur presses, on the other hand, are exempt from enumeration because these smaller features are infrequently reported. Under this framework functional variability is taken to mean difference in purpose.

When different functions can be ascribed to separate structures within a shared category, a number entry for that category will be larger. For example, if there are separate residential structures for a guide and an interpreter at the same site, a value of '2' is accorded to the appropriate category, in this case, "Specialized Personnel Houses." This classification seems unfair when there are sites that may contain multiple residential structures identified as men's houses, but which might not be identified as a numbered total. The problem of plurality is exemplified by documentary instances where the plural form of a word, 'houses' for example, signifies two architectural units. This problem is partly alleviated by recognition that at least two separate structures can be enumerated for that category.

Upon the tabulation of site data, architectural diversity may then be represented statistically. The method chosen for this purpose is to fit a curve to the data. A variety of curves is available for selection to an equation on the basis of the range and frequency of the data. Among the variety of curves available for consideration are the straight linear fit, power, logarithmic, exponential, polynomial (of which there are nine methods), and interpolation. A straight linear fit is useful for time segments when little change may be present, but its long-term, overall use is rejected as it tends to ignore changes in frequency through time, or rate of change. The interpolation curve is rejected because it simply provides a smooth curve restricted to the range of data points by default. Among the remaining choices, neither logarithmic nor exponential curve fits appear to be sufficiently sensitive to multiple changes in temporal trends within the data range. The method used here is a polynomial curve fit as this accommodates changes in curvature with both smoothing capability and sensitivity to changing *y* axis values through a selected temporal range. As some of the categories of data profiled in this study are sparse, a low, third order polynomial is preferred to one of higher order. One of low order may equally well be applied to larger sample sizes. This is important because cross-comparisons among different assemblages of data necessitate method consistency. The temporal range of data used for this study is constrained by the Hudson's Bay Company's entry to the fur trade in 1670, and by the transfer of territoriality and other responsibilities in 1870 to Canada. As the end of a temporal range is most likely to be affected by the addition of new material as these portions are based on fewer data points than available for the core competitive period of 1760 to 1821.

Chapter 4

THE DEVELOPMENT OF PROVISIONING AND THE PROVISION STORE: AN EXAMPLE OF APPROACH

By the early nineteenth century, some North West Company forts appear to have increased in architectural diversity. Alexander Henry, the younger, constructed a fort for the North West Company at the junction of the Park and Red rivers in the fall of 1800. The site was stockaded, and had a dwelling, store house, and shop (Gough 1988:75). In 1816 Fort Gibralter on the Red River is described as having a stockade enclosing a bourgeois house, men's houses, a store, hangards, blacksmith shop, ice house, lookout tower and stable (Wolk 1982:27, citing Douglas 1945:56). Two other references add a kitchen and "a number of stables for horses, cattle, other livestock and poultry" (Wolk 1982:27). One other, supporting reference listed seven functionally different structures, omitting the hangards and stable(s) (Wolk 1982:27, citing Bryce 1885:138). Among this diversity, it is proposed to chronicle a single category of structure, the provision store, as an example in the development of architectural variability.

It is assumed that the rise of the provision store is related to an economic problem in subsistence provisioning. The solution to this problem includes not only the development of country provisioning in the pemmican industry, but also relates to fishing and gardening. For the fur traders, these problems were partly to be resolved through the adaptive processes of diffusion, invention, and migration. The solution may then be viewed in the context of cultural ecology: the exploitation of the Parkland - Plains resources and the development of storage facilities for stockpiling surplus provisions against future requirements locally, and for transshipment to support brigade traffic. As such, then, the advent of the provision store constituted an increase in architectural diversity related to

Historical Outline of Fur Trade Provisioning

During the period of the French fur trade in the west, efforts at both exploration and commercial expansion were hampered by provisioning problems. Peter Kalm, an outside observer, noted that "When the French are traveling far up into the country their only food is corn" and provided an extensive description of its preparation (Benson 1964:566, 574, 575). The French expansion westwards was constrained by the numbers of men available for the construction and maintenance of forts. This population had to be supplied with provisions either brought along or secured locally. The large tract of the forested Canadian Shield was not rich in food resources. That the La Vérandryes and others were unable to address this issue adequately was at least partly responsible for the achievement of limited success in carrying out both the fur trade and exploration.

The inability of the French to address the subsistence issue satisfactorily was exemplified from the beginnings of westwards expansion in 1731. La Vérendrye's contingent resisted advancement beyond Kaministiquia owing to the difficulties of Grand Portage, the lateness of the season and the possibility *"de tomber dans des pays où ils auroient peut-etre manque de vivres"* (Burpee 1927: 91). Although La Vérendrye's nephew, the Sieur de la Jemeraye voluntarily pushed on to Rainy Lake with three canoes and constructed Fort St. Pierre, fear of hunger was sufficient to cause labour unrest. Concerns related to provisioning were consistently used to excuse the slow rate of westward expansion. Although the original intention had been to establish a post on Lake Winnipeg as early as 1731, in late May 1733 La Vérendrye wrote that he had been unable to do so because *"de l'impossibilité de trouver du monde par la crainte de mourir de faim dans ces endroits"* (Burpee 1927: 95).

The fear of a lack of provisions was inextricably linked to dependence upon part of their supply by the canoe transportation system. This system was organized on the basis of a connection from Montreal passing through Michilimackinac, and conveying provisions as well as additional manpower and trade goods. As part of his reason for not being able to establish a site on Lake Winnipeg, La Vérendrye doubted that "*les canots venants de Montréal n'auroient pas nous venir trouver la mesme année, ils ne sont arrivés icy* [Fort St. Charles on Lake of the Woods] *qu'aux premières glaces*" (Burpee 1927: 95). This constraint was obviously something of an organizational or other problem, as indicated by a comparison to North West Company experience and Alexander Mackenzie's 1792 voyage. Having already left England in the spring, Mackenzie found it was possible to travel from Montreal to the upper Peace River in one season. Mackenzie was probably in a lightly loaded canoe, but it is unlikely that he was able to travel consistently at twice the rate of a brigade canoe. The distance from Montreal to Lake of the Woods is much less that one-half that to the upper Peace River, so trade goods from Montreal should have been able to reach Lake of the

Woods before freeze-up. Still later, North West Company brigades conveying goods bound for Athabasca were able to reach Lac la Pluie and return to Montreal in the same season.

Although Father Alneau was credited with responsibility in selecting the site of Fort St. Charles, the availability of fish and game were also a consideration. In the year following its establishment, on 31 May 1733, La Vérendrye, wrote of the Lake of the Woods location, *"il y a bon pesche et chasse* (Burpee 1927:96). These resources might be expected to supply a contingent of men at the fort site, which were about 30 in number, but could hardly be expected to provide a surplus to enable the advancement of canoes any great distance.

On 29 August 1733, a large group of Natives arrived at Fort St. Charles in canoes *"chargés de viandes, graisses d'orignal et de Boeuf, huiles d'Ours et de folles avoines"* (Burpee 1927: 140). These provisions relieved La Vérendrye's concerns as the growing season was not good at the site due to *"des grandes pluyes du printems qui avoient été continuelles"* affecting his wild rice crop (Burpee 1927: 141).

By the late Fall, after the last of the canoes coming from Montreal had arrived, La Vérendrye seemed in a position to predict that *"n'ayants pas assez de vivres pour l'hivernement"* (Burpee 1927: 141). While the six canoes that arrived carried goods for the supplying of the posts, they were also expected to convoy a quantity of provisions for wintering purposes. A partial solution to the provisioning problem was to send men to winter in other locations. From the context and tone of the correspondence, it appears as if little country produce was carried any great distance to Fort St. Charles. La Vérendrye made mention of Natives only coming from as far as the other side of the lake with furs and provisions. Organizational problems involving subsistence requirements and the management of provisioning were never satisfactorily improved and the French solution was dependency upon the Native population. French dependency was not ameliorated through the development of a regularized provision trade. In the absence of such betterment and faced with the want of provisions in early 1736, rather than send part of his complement to the relatively nearby Plains for provisions, La Vérendrye chose to send to much more distant Michilimackinac. That La Vérendrye sent out some 21 men, in only three half-loaded canoes (*ibid:* 217) emphasizes not only provisioning difficulties but also a lack of productivity in effective prosecution of the fur trade.

Even when established in the Red and Assiniboine River district, good bison country until the mid-nineteenth century, the French still had problems supplying their own subsistence needs. Although the exploratory thrust in a northwesterly direction was initiated as early as 1739, extending farther appeared complicated by provisioning difficulties. During the early 1740s several French forts existed in the west, including forts St. Pierre, St. Charles, Bourbon, Paskoyac, Maurepas, Dauphin, Rouge and de la Reine. Only the last two were fully located in the bison provisioning region. Significantly, in 1743, *"La manque de vivres ... obligé* [La Vérendrye] *d'abandonner les forts Dauphin et de Maurepas"* (Burpee 1927: 396). Seemingly, the lack of plans to supply these posts with provisions in order to keep them open so disgusted the Indians that many carried their furs to the more distant English Bayside forts (Burpee 1927:396). In 1749, at Fort Paskoyac on the Saskatchewan River, the *"faute de vivres pour l'hiver"* (Burpee 1927:486) may have been resolved through seasonal abandonment. On his westward trip of 1750, Jacques Repentigny Legardeur de Saint Pierre was distressed at the lack of provisions along the entire inland route (Brymner 1887:cix). From the context of his journal, the lack of provisions in the lower Lake Winnipeg region seems to have been the reason for sending the Chevalier de Niverville onwards to the Saskatchewan district. St. Pierre's unfamiliarity, and probably also Niverville's, with the Saskatchewan subsistence problem and its environmental situation (which included an earlier freeze-up period), assist in understanding Nivervilles's trials. On his way to Fort Paskoyac his brigade was beset by ice and, carrying part of their supplies on toboggans the rest of the way, they were in constant danger of starving. Even at Fort La Reine where St. Pierre wintered, he experienced a lack of provisions. His solution to food shortages was neither to send out hunters nor to trade provisions from the Natives but to send his people into the woods with the Indians (Brymner 1887:cix). In accordance with St. Pierre's orders to continue westward exploration, Niverville sent off ten men in two canoes to construct a new fort in 1751. This site, named Fort La Jonquière was probably located in the Nipawin area and is almost the sole instance where an abundance of provisions was remarked.

In one of the few references to French provisions along the Saskatchewan River by an English correspondent, Henday discovered the French had "neither victuals nor drink, Except a Little Ruhigan" at the Pas in late July 1754 (HBCA B.239/a/40). Henday, nevertheless, either traded or was given a small present of 'Ruhigan', which another reference states is "pounded dry Moose flesh" (HBCA

E.2/6). Bison flesh was also sometimes referred to by this term if it was prepared in a similar manner, cf. "Buffalo Ruahaggan" (in Lytwyn 1986:53). In 1786 it was obtained in the Little North by Indians who had traded it from Canadians situated in the Plains (Lytwyn 1986:53).

In addition to hunting and fishing, the French attempted gardening. The potential for farming was one consideration by the French in the selection of a fort site on Lake of the Woods. Here there was a "*quantité de folle avoines, de très bonnes terres nettes par le feu que je fais semer actuellement* " (Burpee 1927:96). The abundance of wild rice enabled La Vérendrye to conserve his corn supply for the purposes of seeding. It was later written that peas had also been planted (*ibid.* 142). The endeavour to grow corn there as opposed to conveying it from Michilimackinac met with the approval of the Marquis de Beauharnois, Governor of New France (Burpee 1927:104). The attempt, however, was hampered by a late spring, and summer rains. There was yet heavier rain in September such that the local Natives had little to eat because of a poor wild rice crop. La Vérendrye yielded to them and his *engagés* the field of unripened corn. The bushel of peas sown in the Spring apparently produced ten bushels (Burpee 1927: 142), but it was not clear that persistent attempts were made to develop agricultural success. Regarding the development of agriculture elsewhere, Thompson (1969:16n) credited the Chevalier de la Corne with the distinction of being the first to plant wheat in what is now Saskatchewan, presumably at Fort à la Corne. He provided no reference, but it could not have come from Henday.

Precisely what *vivres* were being referred to in the literature was frequently obscure. In this context, there appeared no clearly identifiable references to pemmican as a staple. The implications of the foregoing sample of actions in the French period were several: agriculture was not being developed successfully beyond meeting the merest subsistence requirements; pemmican was not yet perceived as a provisioning staple and trade for it was not developed. At least as a partial consequence, exploration was not soundly supportable nor could the fur trade be exploited to realize a fuller economic potential.

Hearne reported in 1774 that the Canadian canoes headed inland from Grand Portage included in their cargo "Provisions for 10 weeks at least" (Tyrrell 1934:122). If this statement is correct, enough provisions were being carried to support the inbound brigades as far as their wintering quarters above Cumberland House. The implication of Hearne's statement is that no system of provisioning depots existed, at that date, for the canoe brigades. Taking along insufficient provisions, as in the French era, sometimes led to shortages along the way. In 1775 a contingent of traders bound inland in late September with about 130 men, began to run short of provisions while still on Lake Winnipeg. Alexander Henry gave the following description of their predicament:

> This early severity of the season filled us with serious alarms; for the country was uninhabited for two hundred miles on every side of us, and if detained by winter, our destruction was certain. In this state of peril we continued our voyage day and night. The fears of our men were a sufficient motive for their exertions. (Bain 1969:255)

At a trader's final destination, particularly a new location with unknown resources, hardship could result. This was more likely to be the case with thrusts into previously unknown areas such as the Churchill drainage. From the newly established Frog Portage site, five Canadians were sent to winter at the Pedlars' Saskatchewan River settlement because of subsistence difficulties (Tyrrell 1934:131).

Captain Tute, one of the Montreal Pedlars coming into the Saskatchewan country in 1777 with four canoes bound for Beaver Lake, was short of provisions, reminiscent of the earlier French experience of Niverville. As his route lay past Cumberland House, he stopped and requested provisions, which were supplied by the Master, William Tomison (Rich 1951:192). Later that winter provisions were supplied by Joseph Hansom, in Tomison's absence, to a Canadian and his wife traveling from John Ross's post at Basquia towards the Pedlars' settlement of Sturgeon Fort (Rich 1951:213). The Canadian reported that Ross and his men, about eight to ten people (as he had two canoes), were starving for want of provisions.

With the need to travel inland hastily, it is unrealistic to think that the traders could provision themselves *en route*, even though food might be locally abundant. In his 1775 ascent of the Saskatchewan, Henry indicated there were numerous beaver lodges passed, and "the river was everywhere covered with geese, ducks, and other wild fowl" (Bain 1969:258). As an alternative to hunting along the way, Natives could be employed as hunters to supply provisions. This is exactly what Henry and the Frobishers did. On "Meeting two canoes of Indians, we engaged them to accompany us, as hunters. The number of ducks and geese which they killed was absolutely prodigious" (Bain 1969:259).

Following the trading season of 1775-76, and at the time of their going down to Grand Portage, Cocking wrote that the "Frobishers and their People [were] greatly distressed for want of Provisions at their late Settlement", the one at Frog Portage (Tyrrell 1934:37). During the winter, provisions consisted principally of fish caught by nets and hooks. Some of the men hunted for partridges and rabbits, "which with Salt Provisions (small Quantities of which they bring up) serve with Fish as their food" (Tyrrell 1934:38). More than small quantities of salt provisions were brought up, as these were still being consumed in late January, 1776, and dragged about *en train* during their winter expeditions (Tyrrell 1934:38). In the same month, but higher up the English River district, winter movement for the purposes of securing trade in the vicinity of Primeau's Post on Primeau Lake was restricted by scarcity of provisions (Rich 1951:29).

In the early period of the Pedlars' fur trading activity there is circumstantial evidence that many posts were being seasonally abandoned. In 1774 Cocking came to a Pedlars' post on the Red Deer River, the one in Saskatchewan and Manitoba flowing to Dawson Bay of Lake Winnipegosis. The little fort had been established by Blondeau in 1772 and was reoccupied by one of his men and two canoes the following year. The condition of the site is described by Cocking as potentially habitable again. This is not to say that the Canadian Pedlars completely vacated the country although most of the men were employed to convey the furs to Grand Portage as voyageurs (a term that had greater currency following the French period of fur trading activity, e.g., Masson 1889-90:42). Samuel Hearne, during his inland trip in 1774 to establish Cumberland House, passed a vacated Pedlars' house on Pine Island Lake where Louis Primeau, Joseph Frobisher and sixteen others had wintered (Tyrrell 1934:106). As late as 1777, however, the Montreal Pedlars still seasonally abandoned even fairly major sites such as their "upper Settlement" [Sturgeon Fort] on the Saskatchewan River (Tyrrell 1934:53). It would take the summer occupation of these sites to assist in securing provisions and effecting their shipment to depots along the transportation route for brigades.

When men stayed inland, it was initially to construct a new post elsewhere. Hearne learned in 1775 that Primeau and three others had remained inland, not to secure provisions, but to proceed to Frog Portage for the purpose of constructing a new post there for Frobisher to occupy in the Fall (Tyrrell 1934:121). The first party of significant size to remain inland during a summer did so in 1778, when Peter Pond crossed into Athabasca with five canoes and founded Pond's Fort. From about this date both the Canadians and the Hudson's Bay Company were regularly leaving men inland to maintain a presence, erect new structures, and secure provisions.

The region of Nipawi and Fort à la Corne provided the first easy access along the Saskatchewan River to the Plains bison and elk-rich Parklands (Tyrrell 1934:231n). Statistical data are hard to secure on provisioning the Montreal Pedlars and the early North West Company in the Saskatchewan district. Appreciation can be gained for the increase in provisioning by extrapolation from later information. At one of the Saskatchewan "settlements" of the Montreal Pedlars [Fort aux Trembles], Alexander Henry the elder in 1776 reported having seen "In one heap...fifty ton of beef" (Bain 1969:275), possibly in the open.

At the Fort des Prairies, obtaining bison products was an important endeavour. According to Cocking, Henry provided information regarding Native subsistence activities at the "upper Settlement" on the North Saskatchewan River. Bison meat was usually obtained fresh and sometimes dried, and in sufficient quantity that it could serve sizable brigade needs for long-distance voyages. This provisioning was important because forts were still generally abandoned during the summer. Bison were hunted by driving them into a Pound but the Indians were "continually bringing the meat in Fresh the Masters not being able to prevail upon them to dry it" (Tyrrell 1934:39). Henry reported to Cocking that there were "near an hundred" at their settlement and required so much provisions "to supply them in their Journey down, that the Natives seem to have little occasion to trap Furrs" (Tyrrell 1934:40). Hearne also reflected upon the value of a fort situated in proximity to the Plains, particularly near a buffalo pound, for the purposes of provisioning (Tyrrell 1934:159).

The securing or production of provisions against the needs of other brigades probably did not occur until the Frobishers began to enter the English River district in the early 1770s. The Frobishers, and probably Henry, had some shared interest in the Fort des Prairies, and this included a provisioning arrangement. Some agreement had also been made for provisioning Pond's outbound brigade in 1779. During the previous summer Joseph Hansom of Cumberland House wrote to Humphrey Martin at York Fort, commenting that "the Canadian Masters have left Men up this Summer to Collect provisions & ca. against their Arrival" (Rich 1951:255). The formative stage of provisioning, then, seems to have originated about 1780, and required several years of development. Even in 1784, B. and J. Frobisher observed that the general loading of canoes from Grand Portage

> is two-thirds Goods and one-third Provision, which not being sufficient for their subsistence until they reach winter Quarters, they must and always do, depend on the Natives they occasionally meet on the Road for an Additional Supply; and when this fails which is sometimes the case they are exposed to every misery that it is possible to survive, and equally so in returning from the Interior Country, as in the Spring provisions are generally more Scanty. (Wallace 1934:73-74)

The attempt to meet subsistence requirements was not limited to bison products; agriculture was also developed but this initially served the needs of the immediate post. Alexander Mackenzie (1971:129) recorded that since 1784, Peter Pond on the lower Athabasca River "had formed as fine a kitchen garden as ever I saw in Canada." In 1788, a plot thrived here that was sown with turnips, carrots, and parsnips. An experiment was also made with potatoes and termed successful, but cabbages failed due to inattention.

Pemmican, known to the bayside posts long before the move inland (Rich 1949:156), was described more fully by David Thompson at a later date:

> Pemican, a wholesome, well tasted nutritious food, upon which all persons engaged in the Furr Trade mostly depend for their subsistence during the open season; it is made of the lean and fleshy parts of the Bison dried, smoked, and pounded fine; in this state it is called Beat Meat: the fat of the Bison is of two qualities, called hard and soft; the former is from the inside of the animal, which when melted is called hard fat (properly grease) the latter is made from the large flakes of fat that lie on each side the back bone, covering the ribs, and which is readily separated, and when carefully melted resembles Butter in softness and sweetness. Pimmecan is made up in bags of ninety pounds weight, made of the parchment hide of the Bison with the hair on; the proportion of the Pemmecan when best made for keeping is twenty pounds of soft and the same of hard fat, slowly melted together, and at a low warmth poured on fifty pounds of Beat Meat, well mixed together, and closely packed in a bag of about thirty inches in length, by near twenty inches in breadth, and about four in thickness which makes them flat, the best shape for stowage and carriage. On the Plains there is a shrub bearing a very sweet berry of a dark blue color, much sought after, great quantities are dried by the Natives; in this state, these berries are as sweet as the best currants, and as much as possible mixed to make Pemmecan....it is the staple of all persons, and affords the most nourishment in the least space and weight, even the gluttonous french

> canadian that devours eight pounds of fresh meat every day is contented with one and a half pound p^r day. (Glover 1962:312, 313)

By the early 1790s a more sophisticated and regular means of provisioning brigades had been implemented. The construction of a fort, Bas de la Rivière, at the mouth of the Winnipeg River in 1792 typified the improvement in provisioning efficiency of the North West Company. William McGillivray in his Ile-à-la-Crosse journal wrote of a provisioning agreement in February of 1793 (NAC M.G. 19 C1, vol. 5). The arrangement was that Angus Shaw agreed to supply 30 tauraux (skin bags) of pemmican from the Fort de Prairies to be sent through Moose Lake and the Beaver River route to Ile-à-la-Crosse for the support of the Athabasca canoes. Also in the early 1790s, the establishment of North West Company forts at Cumberland Lake contributed to the refinement of their provisioning practices. In March of 1793 William McGillivray wrote to Simon Fraser to send a canoe "to the detroit of the English L. [Cumberland L.] to build some hut there to receive the provn from Fort des Pr. where Mr. Shaw is to send them" (M.G. 19 C1 Vol. 5., p. 12). Innis (1970:234) suggested that the fort at Cumberland replaced an earlier provisioning location at the Pas, but there is little evidence for this and he provided no reference. Also in the 1790s the fort at Lac la Pluie became a depot where the Athabasca brigades exchanged their furs for goods and headed back to the north. Here, provisioning needs were satisfied by the products of agriculture and animal husbandry.

For the period during the late 1790s and early 1800s, David Thompson observed that North canoes, inbound, carried a total weight of 3700 lbs, including 650 pounds of provisions (Tyrrell 1916:177), or one-half of that reported by the Frobishers in 1784. The lading of provisions, however, was probably variable depending upon destination and purpose. Alexander Henry the younger, for example, bound from Grand Portage to Red River in 1800 carried two packs of provisions (1 bag flour, 1 keg sugar) out of a total of 28 packs per canoe (Coues 1897:I:7), one-seventh of a canoe as opposed to the one-third reported by the Frobishers.

The development of the provision store/house/ice house seems to have been contemporary with the discovery that amassing quantities of bison provisions, particularly pemmican, could be used for purposes beyond that of serving immediate needs. Mathew Cocking (Tyrrell 1934:33), provides one of the earliest reports of a provision store in the Saskatchewan district. In 1774 he took an indirect route inland from York Factory to Cumberland House and came across one of the posts built in

1772. The post had been constructed by Bartholomew Blondeau, a Pedlar. This site on Red Deer Lake, west of Lake Winnipegosis had a main house which served most of the functions of the establishment and, in front, "a little Office for laying their Provisions in." The entire complex was surrounded by a 12 foot high stockade and there had been about twenty men at the site (Tyrrell 1934:33). This site report, and its date, serves as an historical reference point for comparing archaeological interpretations that functionally identify provision stores.

The Hudson's Bay Company, partly because of their position based on Hudson Bay, had an operating procedure somewhat different from that of the French period traders and later the Montreal based Pedlars and the North West Company. Provisioning at York Fort depended upon some products brought over in ships, some locally gardened produce and the wild resources of the region. York Factory was remote from the Plains, and the bison meat brought to York was brought along by the Native brigades largely for their own use. When inland in 1772-73, Cocking urged the "Powestic-Athinuewuck" to go with him to York Factory, but they answered that the distance was great, they did not know canoes, and that they would be starved (Morton 1939:285). These Natives, evidently, were not accustomed to laying up large stores of provisions for long journeys and they had little confidence in the ability of York Factory to supply them adequately for their return inland.

The Hudson's Bay Company was no faster than the North West Company in developing an efficient provisioning system. During Mathew Cocking's inland journey of 1772-1773, there was no specific mention of the manufacture of pemmican for voyaging purposes. On his way out in April he reported having "a good stock of food, Viz. Buffalo flesh & several bladders of fat" (Burpee 1908a:117). Edward Jarvis, chief factor at Albany Fort, suggested in 1782 that the first step in a move inland from that direction should be the establishment of an inland supply location, or forwarding base at Martin's Fall (Lytwyn 1986:45).

Canoes sent inland from York Fort started out with provisions supplied. When Samuel Hearne set out in 1774 to establish Cumberland House, he wrote that " as for Provisions we only took 2 Pecks of Oatmeal and 12 LB of Bisquett" (Tyrrell 1934:98). Hearne's journal indicated his party consisted of about nine men in five canoes, "deep laden." and took a route known as the Upper Track through the Grass River. Indian canoes were used as the freightage did not seem particularly heavy. The Indian canoes were of smaller size than those used by the North West Company.

Nevertheless, the two pecks of oatmeal constituted a bulky, heavy and unprofitable cargo which was sent back to York Fort only two days into the trip. For the remainder of the trip Hearne's party relied on hunting waterfowl and game, and the gathering of berries. Hearne reached the vicinity where he was to build Cumberland House in 42 days. Hunting-gathering activities along the way resulted in the observation that there was some scarcity of provisions, but delays were not lengthy. The location was chosen not only to face increasingly active fur trade competition but also to provide subsistence from the important fishery (Tyrrell citing Hearne, 1934). Nevertheless there were still subsistence shortages. Although there were only about eight Europeans and a few Natives at Cumberland House, they grew short of food during their first winter. Some provisions in addition to fish were obtained through hunting of fowl and game, and through trade with the Natives. By the middle of January, however, their larder was so bare they "could not afford more than a Small handful of Dry'd meat call'd Thewhagon and about 4 ounces of other Meat Pr Man Each day" Tyrrell (1934:136). Tyrrell suggested that Tomison's statement is one of the earliest references to pemmican (1934:53), although it is more likely dried moose meat.

By 1775 it was Hearne's opinion that

> it will be necessary to have one or more Settlements made in differant Parts it being noway Possable to Procure Provision for a great Number of men in one Place. (Tyrrell 1934:160)

In a letter of Humphrey Martin, York Factory to William Tomison at Cumberland House, dated 9 September, 1778, he was directed to build a new "House in the Buffalo Country...which For distinction sake, You may call Hudson House" (Rich 1951:268). The role of Hudson House, then, was at least partly for provisioning purposes. There are many journal entries as to the quantities of provisions brought down to Cumberland House, part of which was laid in storage for the inbound brigades. At times this left scant provisions for the winter. In April 1801, Tomison wrote to Bird from Cumberland House that "we have been in a starving condition all the winter for food" (HBCA B. 49/a/30). The provisioning system still required improvement.

Although there were changes to improved provisioning, canoe voyages inland in 1792 and 1797 still occupied 40 and 42 days respectively (HBCA B.24/a/1; B.49/27/b) and over a route that passed through Lake Winnipeg. In 1819 a York boat took 43 days to go over the same distance (Houston 1974:9-25), indicative that any improvements in provisioning did not influence traveling times so much as they may have affected brigade strength and cargo capacity.

The Hudson's Bay Company developed agriculture wherever it was possible. Even York Factory with its inclement weather possessed a garden for "small Spots of Turnips, Collards, Sallads, and other Garden Stuff," belonging, however, to the "Governor and Officers" (Cocking in Burpee 1908a:93, 94). Gardening became of more concern to the Hudson's Bay Company during their inland shift. Tomison reported one man digging part of a garden on 14 May 1781 (Rich 1952:150). Still later, at Buckingham House, cabbages and potatoes were grown (HBCA B.24/a/2). By 1819 at Cumberland House potatoes, wheat, barley and Indian corn were grown (Houston 1974:45, 46, 64). Cattle and pigs had been brought to Cumberland House, and the dairy furnished "all the luxuries of an English farm" (Houston 1974:64). Together with the local fishery, the country produced more than adequate provisions before amalgamation.

The growth of the provision trade was partly indicated by the quantities produced. Duncan McGillivray recorded the trade of "10,000 lbs Pounded Meat" at Fort George, by 22 February 1795 (Morton 1929:55), and "300 Bags Pimican" on 8 May (Morton 1929:77). At his Park River post on the Red River in 1801, Alexander Henry the Younger obtained 57 bags of pemmican, 90 lbs. each; 4 kegs of grease, 7 kegs of beef, and 10 bales of dried meat (Coues 1897:184; Gough 1988:120). In July 1806 at the Panbian [Pembina] River post farther north, Henry listed improved returns as 188 bags pemmican, 10 kegs of grease, 3 kegs of sugar, 24 kegs of beef packed in casks, 6 kegs tongues, 1 keg salt, 2 kegs small bosses (Gough 1988:186, 187). The value of the provisioning system was that, by freeing up space in canoes and boats, it enabled brigades to carry larger quantities of furs and goods. By 1809 Alexander Henry was able to describe his inland journey in terms of provisioning distances per canoe:

> Our expenditure of provisions for each canoe during this voyage was: Two bags of corn, 1 1/2 bushel each, and 15 lbs. of grease, to Lac la Pluie; two bags of wild rice, 1 1/2 bushel each, and 10 lbs. of grease, to Bas de la Rivière Winipic; four bags of pemmican, 90 lbs. each, to Cumberland House; and two bags of pemmican, 90 lbs. each, to serve until we came among the buffalo - generally near the Montée, or at furthest the Elbow, of the Saskatchewan. (Coues 1897:II:539)

There were provisioning way stations at each of the intervals mentioned by Henry. The lading of canoes was standardized and indicated the fineness to which the provisioning system had been developed.

Innis' view (1970:111) that the French successfully developed a "more elaborate organization for supplying provisions in the interior" is open to challenge on the basis of the above history. One of the chief difficulties of the French was that of developing adequate organizational procedures for the acquisition of provisions and their distribution. The numbers of French in the west were low compared to the population involved in the later fur trade, but still there were frequent references to provisioning difficulties and the threat of hunger. In addressing the question of why the French did not succeed in reaching the Pacific, yet other problems have been stressed (e.g., Eccles 1984:9-11), but provisioning difficulties has not been one of them. A good provisioning system might have contributed significantly to their achieving greater success west of Lake Superior.

Tyrrell's characterization of the Canadian brigades' being essentially self-supporting "as the men obtained their food from the forests and streams as they travelled...[un]influenced by the quantity of provisions carried" (1934:35) is an incomplete description. The reality was that considerable reliance was placed on provisions brought along in canoes and the procuring of local resources by a variety of means. Arthur Ray (1974:130-131) linked fur trade expansion and competition in the post-conquest period to development of the provision trade in the Parklands. As pointed out above, the provision trade began to develop between the mid-1770s and 1790. Ray regarded it as a new economic opportunity for the Natives (1974:130-131). This trade was, however, a temporally limited opportunity as company employees quickly undertook to hunt and develop their own ability to manufacture pemmican.

Development of the Provision Store

The identification of the provision store is initially recognized in historical descriptions, and its development is chronicled by modern observations on building size, and the increasing numbers of such structures. Despite Fort St. Charles (1732-1759) being located in an area noted for its hunting and fishing potential, and at least some potential for gardening or harvesting of wild rice, there was no mention of provision storage facilities. This lack of mention seems notable in light of the abundant references to provisioning problems. A provision store appeared to be present only at Michilimackinac, but even here it post-dated 1755 (Stone 1974:352).

Although the earliest reference to a provision store in the Saskatchewan district was Cocking's in 1772 (Tyrrell 1934:33), its development was gradual. In 1777 there were as yet no established conventions for the construction of provision stores appropriate to country provisions. At the Hudson Bay Company's Cumberland House the provision store was expanded, the cellar dug deeper and floored, the floor lowered and re-installed and an upper floor laid. The reason given for the lower level work was that the main floor was "too high above the Surface of the Earth (Rich 1951:165). Dampness and the storage of dried provisions was a particular problem. By 1778, larger amounts of provisions were being obtained and stored in an "out House," but the structure was damp and necessitated movement of the dried meat into the "House" (Rich 1951:264), or main dwelling (HBCA B.24/a/1). In 1779 a new victual shed was constructed in an attempt to overcome the dampness problem. These records are associated with the early development of these provision stores and pre-date regular references to the inclusion of ice and ice-houses.

In the late 1770s the construction of separate buildings for provisions became standard practice. Although the first task at Hudson House was the construction of a dwelling, the men were soon "building a house to put the Provisions in, as it cannot be kept within doors" (Rich 1952:76). This statement implies that attempts had been made to store country provisions within the 'house', a heated structure used as accommodation. While there was little record of the amount and nature of provisions stored in this facility, the food was not only being used for immediate subsistence needs, but also was being stockpiled for voyaging purposes. On 4 May 1780 the servants at Hudson House were still "putting up Provisions ready for going Down" (Rich 1952:100). Provisions went not only to supporting post personnel and the fur brigades but also to supporting Native populations in want. In December 1780 Tomison was able to give a local group in "Starving Condition...30 lbs. of pimmacon" and three sturgeon for provisions (Rich 1952:127, 128). As if the value of provisioning stocks were being proven that winter, Tomison further instructed Robert Longmoor at Hudson's House to trade more provisions than before (Rich 1952:136). In 1807 Alexander Henry the Younger built a post for the North West Company at Panbian [Pembina] and Red Rivers. The ice house there could accommodate "50 Sleigh loads of Ice and 400 Kegs of Water" (Gough 1988:155). On the North Saskatchewan River in 1810 at Fort Vermilion, Henry reported making up 292 bags of pemmican by 18 April and abandoning "400 limbs of buffalo, still frozen" in the icehouse on 31 May (Coues 1897:594, 601).

The provision store was also developed to provide storage for agricultural produce. One of the more ardent farmers was Alexander Henry the younger (Gough 1988). His initial efforts at gardening along the Red River were sufficiently successful that he persevered in sowing and reaping ever larger harvests. His first garden was sown at Panbian River post and began with a few seeds and "30 very small Potatoes, the total making about half a hat full" (Gough 1988:117). The melons and cucumbers froze and the horses destroyed most of the other vegetables such that he was left with only one and one-half bushels of potatoes (Coues 1897:188, 189; Gough 1988:122). Henry persevered and by 28 September 1804 was able to record that

> Men had finished in gathering in all the Potatoes &c 1000 bushels of potatoes, 40 bushels of turnips, 25 bushels of carrots, 20 bushels beets, 20 bushels parsnips, 10 bushels cucumbers, 2 bushels melons, 5 bushels squashes, 10 bushels Indian corn, 200 large heads of cabbage, 300 small and "Savoys Do." (Gough 1988:165)

Henry also farmed along the North Saskatchewan River, reporting briefly on the harvest of turnips and potatoes at Fort Vermilion and barley at old Fort Augustus (Coues 1897:549, 623). As employees increased in all areas, so did the demands of provisioning. Upon departure from Buckingham House in the Spring of 1796, William Tomison had 4800 lbs of pemmican taken along by the brigade (Johnson 1967:39). David Thompson, writing from a later vantage point in time, said of Cumberland House:

> it serves as the general Depot for all the dried Provisions made of the meat and fat of the Bison under the name of Pemican...all the Pimmecan, and dried provisions of all kinds procured from the great Plains are brought down the Saskatchewan and deposited here, and which forms the supply for the furr traders going to and coming from all the trading Posts...it has remarkably fine Sturgeon. (Thompson in Glover 1962:312, 313)

In 1798 at Red Deer Lake House, David Thompson had a "store" built "for meat and fish" (NAC M.G.19 A8, vol.5). Even at small, peripheral posts within the Saskatchewan District such as at Somerset House, Greenwich House and Lac la Biche, the provisions store became an accepted architectural component. In 1800 provision stores were constructed at the new forts of Chesterfield House (Johnson

1967:268), Park River (Gough 1988), and, in 1802, at Pembina River (Gough 1988). Thereafter, provisions stores were frequently inventoried as part of the architectural assemblages in each of the major drainage basins.

Not only did provision stores become more numerous, they also became larger. At the Hudson's Bay Company's Hudson House of 1779, archaeological examination seemed to indicate a structure which could be assigned to this function that measured 15 feet by 12 feet [180 square feet] (Clark 1969:32). About 18 men were associated with this post during its early years of occupation. At the post of Somerset House on Turtle Creek, built by Henry Hallet and nine men, a "shed" of 16 feet by 13 feet (208 square feet) was built (B.204/a/1) and is interpreted as a provision store. In 1800 at Island House on the North Saskatchewan River, a "small store" 24 feet by 16 feet (384 square feet) was presumably for the burgeoning provision trade as a smaller "shed" was used to "put trading goods in" (B.92/a/1).

The victual shed constructed at Buckingham House in 1792 was the second structure erected on site following the dwelling house. This was referred to as a "provision house" (HBCA B.24/a/1) but was not fully described in Tomison's journals. There is some confusion to whether or not it was constructed separately from the Blacksmith's shop. Although much of this site has been excavated, the identification of the provision store has been problematical (Babcock 1990:32). There were three separate, major structures within the palisade. The floor areas of the two possible structures, or parts of structures, that could be assigned to provision store purposes covered 578 square feet and 697 square feet, either of which is an increase over the provision stores that had been present at Island House and Hudson House.

A prolific provision supplier for the North West Company was Alexander Henry. At his Park River post during the season of 1800-01 he had a storehouse erected of 24 feet square [576 square feet], which seems to have been used for both trade goods and provisions. There were about 15 men at this site. On 5 April 1802 Alexander Henry set his men to work building a provision store at Pembina River "100 feet long and 20 wide, all Oak wood" (Gough 1988:127). At the third Fort Chipewyan there was a provision store sketched on James Keith's 1823 plan as a two storey structure with possibly an additional garret or floored attic space and listed as "Stores, with Ice cellars" (B.39/a/22, fo. 69). The building was briefly described in his journal as "a range of stores 98 x 20 feet" (Hamilton 1990:84; citing B. 39/a/22/25, 25d, 26). The structure would thus have had 1,960 square feet of storage space on the ground floor and second floor levels each, for a total of 3,920 square feet.

Conclusions

The use of beat meat, dried and pounded meat, or pemmican by the Natives had long been recognized by the in-coming fur traders as a staple product, but almost thirty-five years of fort construction passed in the west before its acquisition, preservative processing, storage, and distribution became an important provisioning component of the inland fur trade. The ubiquity of separate, functionally specific provision structures following their innovation reflects a change in the perception of how the fur trade should be organized. This period was contemporary with the Hudson's Bay Company's move inland and its competitive tenure at Cumberland House. The success of behavioural modifications, including changed policies, marked by the increased presence of the provision store enabled the fur traders to adapt better to local conditions and provided for the provisioning of brigades traveling in either direction. That the development of provisioning structures took place initially among the *Forts des Prairies* of the Saskatchewan District and during a phase of active rivalry among small and large competitors is significant. For its part, the North West Company became able to extend greatly the boundaries of its frontier into the more distant Mackenzie district, the upper Peace River, the district of New Caledonia, and the Columbia River basin.

Effective resolution of provisioning problems can thus be viewed in the context of a Model of Fur Trade Architectural Diversity and cultural ecology: the organization of human activities changed to exploit Parkland - Plains resources in such a way as to provide for the stockpiling and movement of surplus provisions against future requirements, and this included modification to an established architectural plan. The advent of the provision store, with its functionally distinct purpose, increased architectural diversity. Study of the provision store, in isolation, is difficult to link directly to the increasing presence of still other structures at other times. Instead of taking such a particularistic approach at this time, it is proposed that a more general view be taken of diversity, one that sees it as a broad subject for the purpose of seeking trends and linkages in fur trade architecture, territorial expansion, infrastructure characteristics and, to a lesser extent, competitive behaviour.

Chapter 5

A MODEL OF ARCHITECTURAL DIVERSITY

This chapter develops a model of architectural diversity for the fur trade in northwestern North America. Architectural diversity refers to the recognition of functional differences among structures and the frequency of their increase. These differences are organized according to the framework of categories given in Chapter 3. The term model is used synonymously with pattern and profile. A pattern of architectural diversity is simply a statistical distillation of otherwise mapped, sketched, or narrative information. The intent is to delineate an average through a range of architectural diversity to form a basis for subsequent comparisons to a swelling frontier and related infrastructure variables, including the rate of fort construction, the size of forts through time, the size of fort complements, and the general economic states of competing fur trade companies.

A Model of Architectural Diversity in the Fur Trade

An outline of problems in determining architectural diversity provides a background to the model developed here. The architectural diversity of the total population of forts is not known due to an absence of universal accounting. This results both from the low historical value attached to recording such information and from the loss of records. Data tabulated here are derived from sites in which the number of functionally different structures is either known or can be estimated to a minimum number.

In cases of discrepancy between the archaeological and historic sources, the usual tendency has been to accord precedence to historic references. This decision was usually made on the judgment that most archaeological site excavations are incomplete and formed from an incomplete reading of the historic documentation. This orientation has resulted in different diversities and frequencies of structures being reported in the data base. At Michilimackinac, for example, the 1749 map and report of Michael Chartier de Lotbinière indicated more separate structures than were recorded in an archaeological report (cf., Gérin-Lajoie 1976, Stone 1974). On the North Saskatchewan River, on the other hand, the archaeological report (Clark 1969) attributed more structures to the site of Hudson House in 1779 than were indicated by the post journal. It is not always possible to determine which data base is the more accurate, and for the purposes of this study such discrepancies are taken as irrelevant. Little emphasis is placed on discriminating between the sources of information under the assumption that such differences occur approximately in balance.

A number of archaeological reports map the structures found but do not identify their function. Examples of these include Noble's (1973) excavation of Acton House, Steer and Rogers' (1978) work at Rocky Mountain House and Nesbitt's (1987) report on Piegan Post. The diversity of buildings cannot be more than the total number at that site, although it may be the same or less. Thus, a fur trade site could not be expected to contain a large number of structures without functional diversity. For example, there would not be a fur trade site with two 'houses' unless the post provided a commercial function in one of them. The predictive implication is that the number of structures at sites may be taken as the crudest indicator of diversity. It is intended, therefore, to add to the data base those sites for which the number of structures is known, but the structural function is unknown. This approach would provide a larger and slightly blended data pool, although only by three per cent or less. The tendency here is to lump every term found in the literature into six categories. Maps, plans, and drawings were considered preferable to purely textual sources, in terms of clarity.

The architectural diversity of more than 150 sites is plotted in Figure 3 (derived from data in Appendix 1). The sinuate character of the fitted curve is indicative of changing architectural diversity through time. Generalizations can be made in reference to the more detailed data in Appendix 1. Early Bay-side establishments (1674-86) possessed some architectural diversity. Michilimackinac (1715) exhibited greater architectural diversity than its contemporaries and the overall range of variation in architectural diversity increased during the drift towards the Seven Years War. After the Conquest there was a resurgence of fur trade activity but, even by 1770, the average architectural diversity was only two or three structures per site, although on the increase. Following amalgamation in 1821, few sites having less than five structures are reported in the archaeological and historical literature. The increase in the number of structures remained rapid until about 1850, almost 30 years later. By 1870, architectural diversity at fur trade sites had reached its zenith, about ten structures per site. This period was contemporaneous with the transfer of the Hudson's Bay Company's territorial rights to Canada.

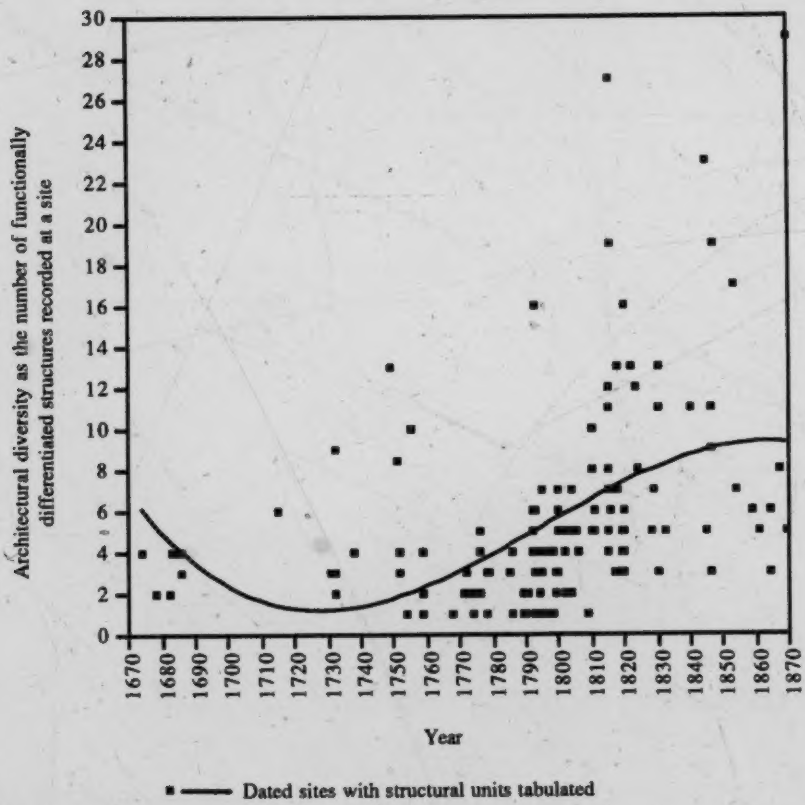


Figure 3. A model of architectural diversity expressed as the number of architectural categories at dated sites, with a third order polynomial curve fitted, equation not displayed.

The curve, model, or pattern is a statistical representation of variability that may be compared to other, similarly compiled tabulations. Observation of the model alone does not provide clues as to the possible factors affecting the changing direction of architectural variability. The historic events coincident with the overall trend of increase included the termination of trading and exploration by New France, the influx of North American-based competitors, the move inland by the Hudson's Bay Company, the later formation of the North West Company, increased competition, amalgamation in 1821, and subsequent monopoly control by the Hudson's Bay Company.

Architectural diversity may also be enumerated for each major architectural group (enclosure, religious structures, organizational/management structures, residential structures, industrial/specialized structures, and subsistence structures). One group may have fewer structures than another; for example, the potential range of religious structures at site will be less than that for storage and maintenance structures. Nevertheless, the range of variation within each of the six groups can be plotted over time for each site. A graph applied to the range in a group can then be compared to that for each of the other groups. These are given in Figure 4 (derived from data in Appendix 1).

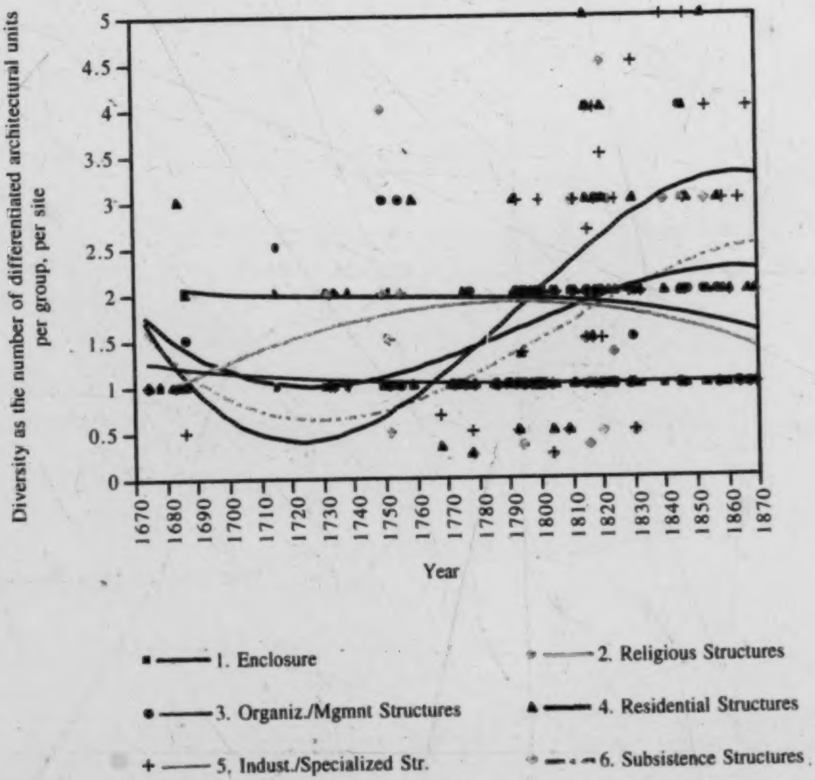


Figure 4. Architectural diversity as the number of functionally distinct units per category, per site.

Most forts included stockade enclosures through most of the time range but these became less frequent in the later nineteenth-century. Religious structures occurred consistently at French fur trade sites, and a few were found in association with late nineteenth century Hudson's Bay Company forts. Buildings indicative of religious needs were few, limited to a church or chapel, and sometimes a house for the and Fort St. Charles, both of French period occupancy, c. 1715-1760. In the more recent period, Albany, Norway House, Fort Edmonton and Fort Vancouver contained religious structures.

Differentiation in a minor degree is observable in the category of Organizational and Management Structures. The character of the distinctions are first apparent in sites responsible for the regulation and control of the fur trade. At Michilimackinac, organizational and administrative functions were present in a Guardhouse, soldiers' barracks and a "barrack for the Commanding Officer and garrison officer" (Stone 1974:315). As this latter structure was also a dwelling, its value might be divided between the Organizational and Administrative category and the Residential Structures category, as the commandant was charged with administering regulations of the fur trade, much as any Bourgeois would have been. Military-oriented structures had no counterpart in later fur trade sites. The earliest reference to organizational and management related structures in a strictly civilian and fur trade sense was at Grand Portage during the period between 1778 and 1804. Here a "Great Hall" and the remains of a separate kitchen were recorded (Thompson 1969:31, 32). At Fort William, the successor to Grand Portage, the Organizational and Management Structures included a commissary, "counting house," committee house, doctor's office, hospital, lookout tower, office, and a prison, although not all existed at the same time. Their number and variety was greatest during North West Company occupancy. After amalgamation with the Hudson's Bay Company in 1821, the number and variety of structures declined. Also in the nineteenth century, Organizational and Management Structures came to be found farther west, at Fort Pelly and Lower Fort Garry and other sites. There were no such specifically identified buildings recorded during the earlier French period.

In the residential category, Clark (1969:32) interpreted archaeological remains at the Hudson House site of 1779-c.1787 as distinctive of structures housing the master and the labourers. This interpretation was based on his acceptance of a journal report that men were putting up "cabbins." Cabins, however, were considered as rooms separated by partitions within the main house. This type of structure was built at many early Hudson's Bay Company sites. It has been proposed that use of the term cabin may be borrowed from accommodations aboard ship (Hamilton 1990). The term may also be derived from earlier French usage, as La Vérendrye wrote of "*cabannes*" (Burpee 1927). In 1794 there was a specific reference to three separate dwelling structures, or parts of structures, for different categories or levels of employees. One building was for the post officer, part of a second for the recording "clerks' rooms," and a third for the *engagés* (Hart 1926:318). At almost all of the nineteenth-century sites there was variability in the functions of dwelling structures. Most frequently there was an officer's house, some kind of house or row house for *engagés*, and sometimes separate dwellings for tradesmen such as blacksmiths and carpenters.

In the category pertaining to industrial structures and stores with a specialized function, there were few buildings until the late eighteenth and early nineteenth centuries. The brick kiln and powder magazine occurred only at Michilimackinac. The 1777 Cumberland House reference to enlargement of "a place to lay our canoes up" (Rich 1951:190) pre-figures a subsequent emphasis on inland canoe and boat construction, and an allocation of architectural space for skilled constructors, materials storage, and canoe sheds. At Grand Portage, three diverse storage structures were identified. This diversification was even more pronounced at the still later Fort William. By the second quarter of the nineteenth century, variability in industrial activity was also beginning to be apparent at the inland sites of Fort Pelly and Lower Fort Garry.

The distribution of provisions stores during the eighteenth century was spotty. A provision store dating post-1751 was identified at Michilimackinac but Stone (1974:323) acknowledged this identification was based more on archival evidence and inference than good archaeological data. For the later 1770s, a provision cache pit was reported for Sturgeon Fort, an independent Pedlars' post, and for Hudson House, a Hudson's Bay Company post. Provision stores were indicated at almost all sites in the nineteenth century. Some of these were defined as fish stores and ice houses. For this time, also, barns and stables are reported. A number of structures with unspecified functions were extant at a number of sites.

The earliest sites exhibited the least structural variability, consisting of a defensive structure, with or without bastions, possibly a religious edifice, and one or more undifferentiated dwellings. Only one site, Michilimackinac, exhibited a degree of greater diversity in relation to other archaeologically investigated sites of the French period. No specialized warehouses, provision stores, or trading shops are recognized prior to 1751 in the archaeological and historic literature. The only auxiliary structures recorded archaeologically were a powder magazine and a brick kiln, again at

Michilimackinac. Michilimackinac was, to some extent, a special case as it was built by the French military for the purposes of controlling the Great Lakes; but it almost concurrently developed into a fur trade centre. The site was not constructed until about 1715 (Maxwell and Binford 1961:14). By 1716, however, the site had already become principally a trading centre, as *"en 1716 pendant le temps de la traite il s'y trouva environ 600 hommes François coureurs de Bois* " (Anonymous map 1717 in Stone 1974:7). Thereafter, Michilimacknac was known more for its population of *coureurs de bois*, licensed traders, craftsmen, and missionary activity than for its garrison. Given the importance of Michilimackinac as a trading centre to the *pays d'en haut*, and its frequently large, seasonal population, archaeological literature and historical sources indicate increasing structural diversity through time. During the French period of occupation there were generally one, two, or three structures present at most sites. At, or about the time Michilimackinac was established, there were six structures at the site. This diversity increased to 10 structures c. 1750, and increased to eleven following British occupation post-1760.

After the Conquest, a rise in architectural diversity also marked a period of increasing competition among North American-based companies, and between these companies and the London-based Hudson's Bay Company. Competition among many small trading ventures contributed to their pooling of interests and the formation of the North West Company in 1783. Although the North West Company thus became the dominant Montreal interest in most of the northwest, small independent companies persisted, either to be vanquished or absorbed. Following Jay's Treaty of 1794 whereby the Canadians were obligated to vacate their posts in the United States, smaller companies that had been active in American territory became American-based. The Michilimackinac Company, or Mackinaw Company, for example was bought in 1811 by J. J. Astor's American Fur Company, formed in 1809. This enterprise was known as the Southwest Company. In time, Astor's far western operation, the Pacific Fur Company, was in turn bought by the North West Company in 1813. Much later some of these smaller companies also attempted to draw trade from the Hudson's Bay Company in areas near the United States border. The American Fur Company was in opposition on the "frontiers of Lake Superior, Lac la Pluie and Red River Districts" and was of sufficient of concern that it was bought out for £300 in 1842 (Oliver 1915:842).

All companies other than the Hudson's Bay Company are generalized as North American-based concerns. The American Fur Company exemplifies the validity of this generalization in the sense that Astor had learned the fur business in America and attracted principals, clerks and *engagés* from the service of the North West Company. The Russian-American Fur Company, in contrast, is seen as European-based, but not as a close competitor, and is outside the range of consideration here. The forts of a few smaller American companies contemporary with the North West Company, were tabulated along with data listed simply as "North West Company," even though their areas of competition did not always overlap. That is, "North American-based companies" is a label for the pooling of information obtained from references to Pedlars' sites, North West Company sites, Sir Alexander Mackenzie and Company (XY) sites, American Fur Company, South Company, Missouri Fur Company and sites of any other ventures that were principally based in Montreal, and Michilimackinac. Few forts of the later, American-based trade, however, are actually included in this study. This concept of North American-based competition is opposed to the Hudson's Bay Company as a London-based enterprise. The profiles of architectural diversity for the North American-based companies *versus* the Hudson's Bay Company between 1760 and 1820 are presented in Figure 5 (derived from data in Appendix 1).

From 1760 until about 1790 the North American-based ventures exhibited a profile consisting of a constant rate of increase in the number of architecturally diverse structures per site. After 1775, however, there was a trend towards increasing architectural diversity until the end of competition. Continuity in the trend reflects data in an historical context dating from the small North American companies in the earlier part of the period and leading to their gradual formation of the North West Company. The Hudson's Bay Company marked its entry to the inland fur trade in 1774. As with the North American-based companies, the Hudson's Bay Company demonstrated an increasing rate of architectural diversity after 1790.

Conclusions

Over much of northern and western North America and through a temporal span of two hundred years, architectural diversity changed on fur trade sites. Architectural diversity was seen as changes to the number of administrative and business structures, segregated dwellings, industrial and other specialized stores, animal shelters and provision stores per site. The diversity of structures at late seventeenth- and early eighteenth-century sites reflected a period when trade was initially conducted out of the major posts on Hudson Bay and at Michilimackinac. As the French trade began to be carried out through hinterland posts in the Illinois and Ohio country, and in *la mer de l'ouest*, architectural diversity fell from what it had been at Michilimackinac. After the fall of New France, the forts of subsequent traders showed a change in the direction of architectural diversity. From the Hudson's Bay Company's entry into the Northwest, both it and the North American-based companies rapidly increased their range of variation per site until amalgamation in 1821. From this date, but now in a monopoly situation, architectural diversity at Hudson's Bay Company sites continued to increase until approximately 1870.

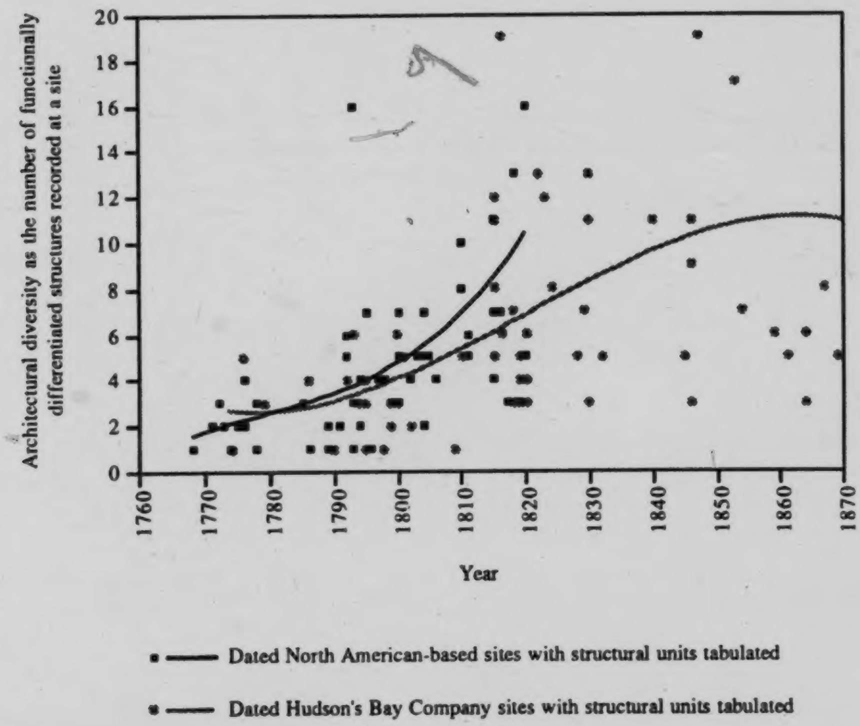


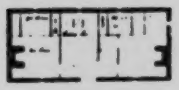
Figure 5. Architectural diversity at North American-based and Hudson's Bay Company sites.

The similarity between the North American-based and Hudson's Bay Company profiles was striking. The ethnic model outlined in Chapter 2 argued that ethnicity played a strong role in the architectural make-up of a site. The North American-based companies were Scots/American/Canadian/French-Canadian in ethnic character. This background was relatively constant through time and, in itself, does not explain how or why they provided no stimulus to increased architectural diversity before 1780; nor does it provide an explanation for changes to the rate of increase. An approximately similar profile resulted from the Hudson's Bay Company's different English/Orkney background and is not explained by reference to a simple 'ethnic' argument. Ethnicity, rather, might have had a greater role in affecting formal and stylistic attributes of architecture than in effecting diversity. The inference is that yet unidentified forces, contextual to the two populations of traders, precipitated reactions more similar than different.

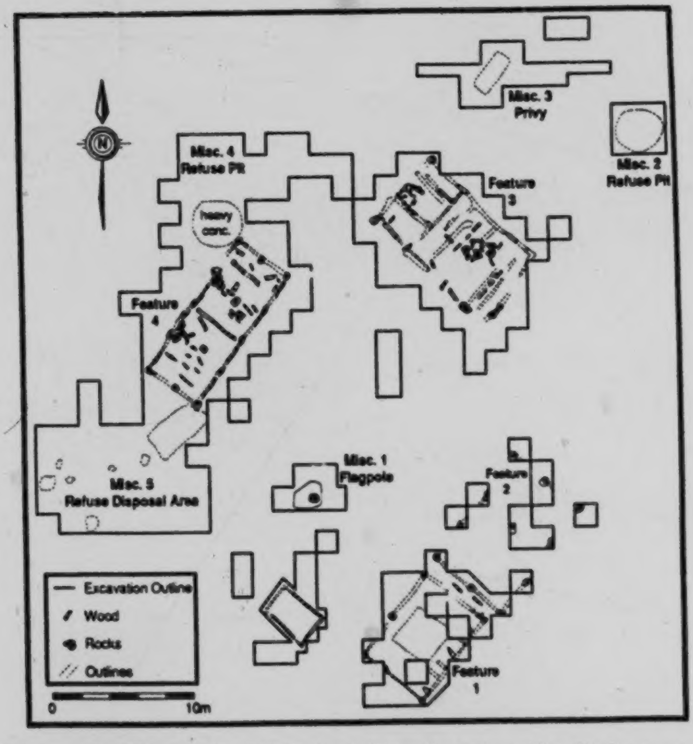
In a specific category, architectural diversity in accommodations has been explained by other researchers in terms of social structural factors. Status, wealth, prestige and power/communication attributes of the hierarchical model defined the roles of ethnic cultural participation. Although the socio-structural model goes some way towards accounting for differences in residential diversity, it provides little insight into the rise and development of the social hierarchy, or how these relate to the inception and development of architectural variability.

The foregoing observations and interpretations have been derived from analysis of information contained in archaeological reportage, archival and historical sources (Figure 6). The utility of the method is that it allows the easy incorporation of additional site information. Unless new-found data are of considerable quantity and well outside the range of variation already recorded, the trend identified is not expected to alter. The early end of the trend is most likely to be affected by the addition of new material as this portion is currently based on a sparse sample. One test here is for other researchers to take the same body of information in order to compile their own table for comparison.

I suggest that the profile of architectural diversity can be used predictively. Given that Acton House, constructed on the North Saskatchewan River in 1799, and Piegan Post, built on the Bow River to the south, were roughly similar in size but constructed more than 30 years apart, the latter fort probably harbours greater diversity, and this diversity likely consists of additional structures in the residential, industrial, storage and provisioning categories.



The Hudson's Bay Company's Red Lake House of 1790 consisted of only one structure for multiple purposes, including accommodations for James Sutherland and 14 men (HBCA B. 177/a/1 fo. 17d). The original plan is reduced here to the same scale as Last Mountain House, below.


N
Misc. 3
Privy
Misc. 2
Refuse Pit
Misc. 4
Refuse Pit
Feature
3
heavy
conc.
Feature
4
Misc. 1
Flagpole
Misc. 5
Refuse Disposal Area
Feature
2
Feature
1
Excavation Outline
Wood
Rocks
Outlines
0
10m

Last Mountain House, in 1870, had five functionally distinct structures for a complement of only seven employees. (Plan from Klimko and Hodges 1993:24)

Figure 6. Archaeological and historic documentation indicate differences in architectural diversity through time.

Provisioning problems were particularly noted as the distance increased inland from the major supply bases, including Michilimackinac, Kaministiquia, York Factory, Albany, and Grand Portage. A large part of the solution to these problems lay in the development, through trade and by the organization of fort personnel, of country produce, especially pemmican. This development did not take place by the French, even though they had several sites along the margins of the northern Plains. This economic development, rather, occurred in a context of direct, close economic competition among the Pedlars, and between the Pedlars and the Hudson's Bay Company, and was materially marked by the construction of the provision store. It is proposed that, within the same context, other functional problems in the fur trade were also resolved by increased architectural diversity. That is, competition among a spectrum of companies and Native groups personified cultural interaction; and activities carried out resulted in the gradual transformation, or change of state in the Fur Trade Architectural Diversity Model. The further implications are that the rate of territorial expansion, measured as the placement of forts ever farther afield geographically, is integral to a broader understanding of the development of diversity generally.

Chapter 6

A MODEL OF FRONTIER EXPANSION

A description of western fur trade expansion, including the passage of time and geographical expanse, implies a potential for the recognition of a measurable rate. Several factors have limited and complicated the investigation of rate, and a contribution towards understanding the problem can be gained by reviewing the historical and archaeological literature.

Historical Outline and Interpretations of Fur Trade Expansion

French expansion westwards in the area of the Great Lakes during the 1670s was carried forward by Daniel Grayson Du Lhut in the direction of the Mississippi. Jacques de Noyon penetrated the territory west of Lake Superior, apparently reaching Rainy Lake via the Kaministiquia route. As long as the English were able to attract a large trade from inland Natives to their Bayside posts, there was little incentive to establish inland trading sites. With the intensification of hostilities between the French and English in 1702, the French fur trade forts began to take on a more overt military character with garrisoned soldiers. Eccles (1979:423) suggested this shift reflected a trend begun the seventeenth century whereby the fur trade of New France became more interwoven with larger political and military issues. Subsequent to the Treaty of Utrecht the interrelationship of these spheres became even more apparent. In 1713 the fort at the mouth of the Kaministiquia River was rebuilt. The French again pursued furs through the river and lake waterways of the continent. Although some of the French fur trade of this period was carried out by *coureur de bois*, who extended French influence as far as the Red River district, much trade also began to be carried out at fort sites as well. The governor general of New France, Rigaud de Vaudreuil, ordered the fortification of Kaministiquia in 1717 as the first of the *Postes du nord.*

The hostility of the Sioux has been regarded as one factor in retarding French progress to the Lake of the Woods region, but the success of the French in acquiring furs from these inland areas was creating concern at distant York Factory, the Hudson's Bay Company's post at the mouth of the Hayes River on Hudson Bay. When Pierre Gaultier de La Vérendrye was appointed to command the western posts with an objective of pursuing inland exploration towards the Pacific, he brought with him experience as a soldier and fur trader. Beginning in 1731 there was a definitive move westward of Lake Superior but one which had to be supported by the returns of the fur trade. Much of this westward expansion was due to the La Vérandryes and to a lesser extent to their successors: Nicolas-Joseph de Noyelles, Legardeur de Saint Pierre and his subordinate, Niverville, and to Louis Chapt, Luc de la Corne.

Exploration proceeded westward with the establishment of Fort St. Pierre on Rainy Lake in 1731, Fort St. Charles on Lake of the Woods in 1732, Fort Maurepas at the mouth of the Winnipeg River in 1734, Fort Rouge at the junction of the Red and Assiniboine rivers in 1734, and Fort La Reine on the middle Assiniboine River near Portage la Prairie in 1738. In 1741, Forts Dauphin and Bourbon were constructed. Later references to Forts Paskoyac, La Jonquière, and La Corne further exemplified French presence in the west. Not all French forts, neither all of their dates of establishment, nor their duration of occupation can be completely known. There were at least 19 different posts in the northwest. Not all were occupied contemporaneously. Some posts were occupied for relatively long periods of time, such as Fort St. Pierre, Fort St. Charles, and Fort La Reine. Fort La Reine was repaired twice, once after having been burned by the Natives. La Barrière and Tête de Beouf are barely mentioned, suggesting the probability that some sites existed for perhaps one or two years.

Even though Britain's naval power severely curtailed France's merchant marine activities during the course of the Seven Years' War, interruption to western fur trading activity out of Montreal did not bear a direct correlation. As late as 1759, the year before the capitulation of Montreal, *engagés* were still being recruited and sent to *la mer de l'ouest.*. Furs obtained were still being sent to France, and some were diverted to Albany and New York merchants. Two years before the signing of the Treaty of Paris in 1763, by which New France became part of British North America, English and American merchants were seeking to establish bases in Montreal and Michilimackinac.

Trade around the Upper Great Lakes suffered a less protracted hiatus than that in the Saskatchewan region. Innis (1970:168) suggested that Alexander Henry the elder dispatched traders to Grand Portage and farther as early as 1761. Although there are reports of Indian hostilities in the Rainy Lake region in the 1760s (Wallace 1934:70), a case can be made for some canoes having reached Lac la Pluie in 1765 and Lake Winnipeg in 1766 (Wallace 1954:4). By the end of 1767, Montreal traders had established forts in the Assiniboine-Red River region and one on the Saskatchewan River (Morton 1939:269; Wallace 1954:6, 7). Thereafter, several traders or Pedlars operating out of Michilimackinac and Montreal re-established forts and erected new posts extending fur trading activity not only onto the North Saskatchewan River, but also towards the English River, and up the Red, Assiniboine and Swan rivers.

Renewed stimulation of trading activity has been attributed to a circular of Lord Hillsborough, Secretary of State, who directed that the Indian trade be opened, stimulating a rush by English entrepreneurs into Rupert's Land (Morton 1939:270). The expansion of the Pedlars westwards was carried out by some of those who had once been west during the French period, and by a number of British and American adventurers seeking to make personal fortunes. The character of this assembly changed through time, becoming more and more dominated by Scots who made extensive use of familial links, acquaintances and patronage.

There was an overlapping period for the end of Pedlar expansion and the beginning of North West Company expansion. The Pedlars occasionally shared resources, such as fort sites and provisions. Short-term partnerships of convenience supported some expansionist ventures, such as that of Alexander Henry the elder and the Frobishers into the English River district. Similarly, Peter Pond was a member of a small partnership that equipped him with sufficient goods, and probably provisions, to enable his successful foray into the Athabasca district in 1778.

The Hudson's Bay Company continued to carry out trade from its Bayside posts until the pressure of competition motivated their establishment of inland posts. Hearne observed in 1775 that

> it will by no means advisable to Push a great Number of Men inland tell some proper measures can be found to Procure Cannoes fit for that service....[and] Cannoes is the prinsable thing wanting for the farther extending the Inland expedition. (Tyrrell 1934:159,160,188)

Hearne (Tyrrell 1934:188) recommended the development of light wooden wherries but resolution to this problem awaited diffusion of canoe building technology from the Pedlars and Natives. This began to occur about 1779 when Robert Longmoor wintered at Hudson House and began to acquire this skill. As years passed, more and more Hudson's Bay Company posts were built inland. In this context, the construction of more posts at ever greater distances inland is seen as an adaptive strategy in the face of competition. In effect, an increasingly broad distribution of forts was a cultural migration that succeeded because of the diffusion of canoe construction methods that were gradually modified by experimentation and invention to meet specific needs.

The views of historians regarding expansion inland by the fur traders have influenced archaeological perspectives. This situation is due to historians' studies preceding the development of scholarly investigation of the fur trade by archaeologists. Early archaeological studies were undertaken on a site-specific basis. As time was required to develop a broader pool of archeological information, early analyses could hardly be of a generalizing nature. When the archaeology of the fur trade was in an early developmental stage, it was acceptable to follow the description of events and interpretations of historians.

Wallace (1934:1) stated that the North West Company "opened up the whole of the North West from Lake Superior to the Pacific Ocean, and...to the Arctic Sea", an achievement particularly belonging to the North West Company (1934:21). This is an overstatement. The French began to open the country fifty years earlier, and reached up the Saskatchewan River from Montreal and Michilimackinac. Subsequently, the Montreal Pedlars established forts on the North Saskatchewan, and in the Athabasca, Peace River and Slave River districts, much of these activities well before 1800. Expansion beyond these regions may only be attributed to the North West Company after about 1789. Within a continental scale, Wallace (1934:21) defined the interval from 1804 to 1814 as the "greatest period of expansion." He left it unclear whether or not 'greatest' referred to a rate of expansion or to geographical scope. Obviously, much expansion took place prior to this time, and the ten-year period cited is not adequately justified. It may be inferred that Wallace considered rate and geographical spread to be interrelated concepts. Wallace's interpretation was challenged by Innis (1970:167), who suggested that English interests expanded into the Northwest fur trade with "amazing rapidity," placing emphasis on the period immediately following 1760.

If taken in a comparative sense, one implication must be that the earlier French expansion was slow. Eccles' (1984:11) contention was that French fur trade expansion faltered because of the home government's financial disorder and colonial policy, and that it was curtailed only by the war and an English victory. In a narrower view, E. E. Rich wrote that "the French were handicapped by their routes and their goods" (1958, 1:482), thus limiting their capacity for expansion. Subsequent to the

Conquest, the process of rapid expansion was facilitated by the "efficiency of English manufactures ....[together with a legacy of] French organization, personnel and long experience" and was exemplified in commercial partnerships such as existed between Alexander Henry the elder and M. Cadotte (Innis 1970:166 - 168).

Ray (1974) has cited competition, heavy trapping pressure, and development of the Native provisioning trade as factors in leading to rapid spatial expansion between 1763 and 1821. Ray's presentation was a useful addition in his recognition and documentation of declining fur resources. One archaeologist has suggested that rapid expansion of inland trade occurred within the time frame of 1780-1821, a time "noted for an uncontrolled and rapid expansion of the fur trade" (Hamilton 1990:12). Although Hamilton recognized that the Hudson's Bay Company was influenced by French trade activity, the relationship between the two competitors was not expressed as a factor in French inland expansion (1990:17). In this Hamilton followed Innis. In another archaeological presentation, Pyszczyk (1992:34) did not identify a beginning date for the expansion period but indicated that "Prior to 1821...the fur trade rapidly expanded west and north." Neither Pyszczyk nor Hamilton addressed the various time frames proposed by historians for rapid expansion, nor their causation.

The only clear agreement among historians and archaeologists was that expansion equated with geographical attainments. Archaeological researchers have also accepted, with differences in nuance, the explanations of fur trade expansion as given by Innis, Rich, and Ray. Except in a general sense, there has been little concordance as to the period of rapid expansion or what this means. There has been disagreement on whether the period of rapid expansion began in 1763, 1780, 1783, or 1804. Except for Wallace's claim for 1814, a more common view was that expansion was over by 1821. This ill-defined view of expansion has also found perpetuation in popular historical literature (e.g., Newman 1987).

The concept of rate is complex. In one fur trade study, distances between sites were used to demonstrate the ability of the freight canoe to average, as a rate of speed "at best...1000 miles per month" (Morse 1969:18). This rate was not correlated to the establishment of fur trade posts by time or distance. In two theses, the increasingly distant establishment of fur trade sites westward from major supply depots was correlated to increased values of trade goods sent inland, still another kind of rate (Pyszczyk 1987:141; Hamilton 1990:161, 162). As distance to forts increased, so did the cost of goods. In Pyszczyk's work distances inland were ranked both nominally and ordinally. That is, the Nipigon department was ranked as more distant than the Fond du Lac department. Still more distant were the departments of Lac la Pluie, Forts des Prairies, English River, Upper Athabasca, and so on (Pyszczyk 1987:141, 146, and citing Wallace 1934:197). In Hamilton's thesis, distances were given as a result of measurements in a "straight line rather than [along] meandering river courses" (1990:21). This approach seemed to promise some attempt to use measurements in a cardinal analytical framework. However, when "price markups" were related to destinations, he reverted to a nominal or ordinal ranking (1990:162) that was similar to Pyszczyk's. Both studies used previously known information that the farther inland goods were transported, the more their prices increased. An increase in the former explained increase in the latter and implied the possibility of a proportional relationship. Precise correlation between the two, however, was problematical. Using the same source of data (Wallace 1934:197), the tariff on goods shipped inland in 1804 from Fort William to the departments of Lac la Pluie, Lac Ouinipigue, Upper and Lower Red River, and Fort Dauphin increased by a factor of 2.4. The actual distance increased by only a factor of 1.4 to 1.8. Although it is true that both the distance travelled inland and the price of goods increased, the relationship between them, or rate, was not truly proportional. In this case, the use of cardinal measurements in an analytical scale helped demonstrate their utility by indicating that an increase in goods' prices requires a more complex explanation than simply its reference to a 'rate' of geographical expansion.

In summary, fur trade expansion has been seen as a spatial phenomenon; and favour has been given to an historical perspective that French fur trade expansion may be trivialized in comparison to post-Conquest events. There is no concordance as to the time period of fur trade expansion. The variation in views provided by historians and archaeologists has tended to be based on subjective methods that led to inferential interpretations. Inferential interpretations offer differing opinions that are difficult to evaluate comparatively without reference to some other framework. That framework, or tool, is provided by constructing a model open to comparison, observation, and reflection. The first step is to formulate a rate of expansion across space and through time.

Cardinal measurement of the site/distance relationship gives the degree of mathematical control required here (that is, cumulative distances from an established site to a new site are plotted against time to provide a rate of inland expansion). This method is used because it can be employed for studies within a region or for sites across regions. The dates of construction for sites are widely reported and their distance from fixed points has either been recorded in historic documentation or can be derived by map measurement.

Not all fur trade site locations are known. Furthermore, the quality of distance measurements in the historical past and as used by modern researchers merits discussion. A few examples will serve to demonstrate that these factors are frequently intertwined, and how the uncertainty of locations could skew accuracy on a spatial/geographical axis. The most prominent example would be that of Fort La Jonquière (Burpee 1935). Following the death of La Vérendrye in 1749, the general administration of the western posts and the continued search for the Western Sea were given to the command of Jacques Repentigny Legardeur de Saint Pierre. Saint Pierre travelled inland in 1750. Under St. Pierre's direction, the Chevalier de Niverville was sent into the Saskatchewan River region, apparently to Fort Paskoyac. Although he was probably sent there late in 1750 because of a lack of provisions to maintain his group in the lower Winnipeg River region, he was expected to undertake a westward advance the following spring. This push was to include the construction of a new establishment "*à trois cens Lieues plus haut que celuy du paskoya*" (Brymner 1887:cix). Three hundred leagues probably represented a rounded figure, but its meaning is complicated by the currency of different league measurements, the lengths of which are not all agreed upon by scholars (for example, Boudriot 1986, vol. 1:50; Chardon 1980:134-136). Boudriot using a measurement of one *toise* equivalent to six French feet or 1.95 metres (1986, vol. 1:50), identifies the small league of 2,283 *toises* [4,451.85 m], the common league (*lieue commune)* of 2,400 *toises* [4,680 m], and the nautical league (*lieue marine*) of 2,852 *toises* [5,561.4 m]. Chardon gives the *lieue commune* as being equivalent to either 4,444.5 m or 4,872.6 m, depending on time period and context. The *lieue marine* is regarded as equal to 5,556.6 m. Chardon also gives a *lieue de poste* of 2,000 *toises* [3,898.1 m] as the "official league in all North American French colonies during the 1700s" (1980:136). If the reference to Fort La

Jonquière is accepted literally, then it could have been located between 1,169 km and 1,667 km upstream from Fort Paskoyac.

The actual location of Fort La Jonquière has never been determined. Saint Pierre related that his order to Niverville was carried out on 29 May 1751. Ten men in two canoes ascended the Saskatchewan River to the 'Rocky Mountains,' built a good fort and amassed a store of provisions. Presumably the site was abandoned in 1752, for there is no subsequent reference to it. Several historians accept these statements at face value, placing Fort La Jonquière near Calgary, or Rocky Mountain House (Burpee 1935; Innis 1970:95; Eccles 1984:9). Burpee (1908a:285, 286) suggested Fort La Jonquière may have stood one hundred leagues [468.31 km] upriver from Paskoyac, based on a reference in Sir Guy Carleton's correspondence from Quebec to Lord Shelburne, 2 March 1768. Other scholars have also questioned that any French fort was built so far west. Niverville's late departure for the Saskatchewan region resulted in his people's enduring extreme shortage of provisions that winter. He was unable to lead the expedition dispatched in the spring. Given that his two canoes of men did not depart until after breakup, probably in mid to late April (Ray 1974:42, Figure 14), it is improbable that they could have moved in so short a season almost as much farther westwards again as Fort Paskoyac was from Kaministiquia. Tyrrell (1934:23, 24) took a different perspective on the same source. Tyrrell read that St. Pierre's Fort La Jonquière was built on 29 May, a point of information that he suggested might lead to a possible location for this site near Peonan Creek, along the Saskatchewan River. Morton (1939:237, 238), in another review of the problem, seemed to concur with Tyrrell's assessment. More recently, Champagne (1971:49-51) provided a still more conservative interpretation with the suggestion that Fort La Jonquière was nearer Nipawi d'en Bas. Neither the Hudson's Bay Company's employees sent inland nor the later Montreal Pedlars suggested that the French ever had posts upstream from the forks of the Saskatchewan River. Peter Pond's map presented to Lord Hamilton in April 1785 indicated the location of a post on the north side of the Saskatchewan River, below the forks and with the accompanying notation that "This is the highest Post the French Traders Possess'd" (Copy in University of Alberta map collection). Fortunately, there are few sites as problematical as Fort La Jonquière, but its possible location can be discussed later, in light of its relationship to a site distance/time chart where other site locations are known more confidently.

The most accurate distance/time chart requires that the route to western sites be known for each fort. It is not known, however, which routes were used for each voyage west, but the routes are generally known for different periods of time. Sites used as starting points for discussing western expansion of the North American-based fur trade include Kaministiquia, Grand Portage and Fort William on the western side of Lake Superior. All of these sites were clustered in close geographical proximity, but their use as bases only slightly affected changes in route, and slight differences in distance inland. In comparison to the great distances between Fort William and the lower Mackenzie River, the Columbia River and New Caledonia, the different distances inland from Kaministiquia, Grand Portage or Fort William were insignificant.

The Kaministiquia River route was early used by French explorers, including the expedition of Jacques de Noyon in 1688. The later thrust of La Vérendrye adopted instead the route used by the Indians via Grand Portage, to which the first clear reference was made in 1723 (Burpee 1927:7). This route continued to be used after the collapse of the French regime, but with altered logistics when buildings were erected at Grand Portage for depot and staging purposes, possibly in the later 1770s (Thompson 1969). Following the provisions of Jay's Treaty of 1795, which stipulated the removal of British activity from American territory, the North West Company moved its Lake Superior depot to Fort William, thus marking a return to the Kaministiquia route. The shift occurred in 1803. The appeal of the Grand Portage route was that it offered the shortest distance to the interior at 334.51 km [207.86 miles] from Grand Portage to Rainy Lake (Hind 1971, vol. 2:433). From Kaministiquia to Rainy Lake the route is recorded as 263 miles, longer by 55.48 miles (Hind 1971, vol. 2:433). This distance affects only the initial portion of the route, from Lake Superior to Lac la Croix, where the two routes joined.

Evaluation of references made to distance measurements is made by critical and comparative examination. A standard work, *Fur Trade Canoe Routes of Canada/Then and Now*, finds the work of H. Y. Hind the "most authoritative" (Morse 1969:81). There is only a small difference in the distance from Kaministiquia to Rainy Lake at 263.27 miles given by Hind's exploring expedition *versus* 263.34 miles recorded by the International Boundary Commission (Hind 1971, vol. 2:401, 433), whose work might equally well be relied upon. Among the distance measurements of the fur traders, those of Alexander Mackenzie and David Thompson show a generally trustworthy accuracy, and a high degree of consistency. As an example, Mackenzie noted that previous fur traders indicated the distance along the Rainy River was 120 miles, but he measured it at 80 miles (1971:lvii). This measurement is close to Hind's 79.83 miles (Hind 1971, vol. 2:401). The recorded distance measurements of John Franklin (1971) and Robert Hood (Houston 1974), although at slight variance, are sufficiently close to those of Mackenzie (1971) and Flygare (1983) that all may be used with confidence. When the measurements of Franklin and Hood refer to the same site, the distances of Hood are used over Franklin, but only for the sake of consistency. Other reliable sources include recorded river distances for navigation (Mills 1947; Peel 1972; Stevenson 1977, Flygare 1983). Distance measurements along the Assiniboine River are problematical because the overland route was much shorter than following the serpentine course of the river. Between the forks of the Red and Assiniboine rivers and the site of Fort La Reine, La Vérendrye observed that

> *nous comptant à environ soixante lieues de la Fourche par eau; et par terre trente cinq à quarante ...* (Champagne 1971:17 citing La Vérendrye 1739)

Champagne (1971:17) noted the distance is exaggerated; taking Portage la Prairie as an extreme limit the distance from the forks is barely 60 miles. Following Hind 1971:137), the surveyed distance is more like 66 or 67 miles, but the last 43 short-cut the 90 miles of a serpentine canoe route.

Recorded distances coincide with fort locations intermittently, so some interpolation is necessary. This interpolation can be made between forts or between geographical features and forts. In these cases, incremental distances provided by fur traders and by scaled map measurements may be combined. A "Curvimetre" map measurer and maps at a scale of 1:250,000 were used to measure distances along trade and expansion routes. A map scale of 1:50,000 may have been more accurate but the 1:250,000 scale was chosen for the sake of consistency and convenient size. In regard to accuracy, distances measured on maps were compared to distances recorded by riverboat pilot documents. Sections of the Saskatchewan and North Saskatchewan rivers, the Athabasca River, the Mackenzie and Liard Rivers, and along the Columbia River were checked comparatively. In all cases the measurements derived from using a curvimetre were less than those recorded by river travelers. The degree of error ranged from 2.8% on an 800 km stretch of river between the Forks of the Saskatchewan River and the site of Fort Edmonton/Augustus I, to 7% over a distance of almost 500 km on the Liard River between Fort Simpson and Fort Nelson.

As one of the objectives is to provide a reasonable but not precisely accurate scale against which to plot distances between sites, the margin of error represented by these differences is not considered to be crucial. Only whole numbers are used in this study.

Geographical expansion is described by a relationship between a fixed point and tabulated distances over canoe routes to ever farther, new fort sites, with reference to the years in which they were built. The construction of infrastructure sites acting as supply depots and way points is taken as a given, but their location does not measure the depth of frontier extension. Data are plotted as a time/distance chart to enable observation of chronological changes. Time/distance line graphs may be constructed for different regions and routes. One example is the record of distances and dates to new sites constructed along the route from Grand Portage or Kaministiquia/Fort William to the Saskatchewan district, and through the Saskatchewan into the Columbia River Department. Graphs of the rate of expansion may also be constructed for other regions including the Red - Assiniboine River, Athabasca, Mackenzie River and Peace River - New Caledonia districts. This plotting may be accomplished for different fur trade groups, including the French, the Montreal Pedlars, the North West Company, and the Hudson's Bay Company. For the purposes of this thesis, only a generalized rate of expansion is required. The regionally specific rates may be of more relevance to the analysis of local problems and events.

Archaeological and historical research has contributed information as to site location and transportation routes, and the dates of sites. A mathematical process then generates a line graph that demonstrates a trend through the range of variation in the data field. As the data points represent actual events, the linear form is, therefore, a model, profile, or generalization of the rate of fur trade expansion. That the curve can also be given as an equation is here immaterial as comparative observation between linear forms is more easily undertaken visually. Thus, the rate of fur trade expansion can then be compared to the pattern of changing architectural diversity. The comparative examination of the profiles is also conducted in reference to historical context. A high degree of similarity in form between two graphs may be construed neither as a necessary correlation nor a causative relationship. It is this analysis that leads to pattern recognition, interpretation, and further research.

One might assume that a constant rate of expansion would be revealed by the construction of new forts beyond old ones at a regular distance per unit of time. This constancy might be expected from one geographical region to another, all factors being equal. In compiling data for the formulation of this rate, I only used those sites beyond those previously established in each district. All regions, nevertheless, have to be accounted for even if expansion was slower into the Saskatchewan district than into the Athabasca, for example.

The concept of rate is not devoid of cultural values. From this viewpoint, the association of any particular site to an ethnic group may be relevant. Site construction and location are inseparable from cultural constraints. Cultural factors are not minimized, but they are not specifically portrayed in data tabulation and graph construction. The detection of the influence of ethnic distinctions and events on the expansion profile is derived from knowledge of the historical context. The measure of the rate of westward expansion applies to sites established during the French period, by the subsequent Montreal Pedlars, and by the later North West Company, each with distinct cultural traditions and experiences. For all of these, Grand Portage/Kaministiquia/Fort William is given as a common point of origin for measuring distances to sites. The Pedlars were most numerous and active from 1761 to 1783, and it is of interest to know how much farther their sites were erected beyond those of the French. As amalgamations of individuals and small partnerships coalesced into the North West Company, the sites of this enterprise become of interest.

The Hudson's Bay Company gained access to the inland areas from York Factory by a shorter route and this factor might result in a distinct skew to any graph providing a temporal context preceding and following 1774. It is tempting to provide compensation in graphs with different companies and different working distances but a common temporal span. The distance from York Factory to Cumberland House is 666 km less than it is from Grand Portage. By adding this amount to the distance to Cumberland House, all Hudson's Bay Company sites beyond this point may be reconciled into a more comparable graph with those of the Montreal based adventures. This process, however, would represent an event without historical validity and is not selected. Just as the numbers of architectural units per site were tabulated and a composite graph obtained in the previous chapter, a similar exercise is performed to formulate a generalized, composite rate of expansion.

Although the French had been west of Lake Superior in the late seventeenth and early eighteenth centuries, there was no sustained drive until that begun by La Vérendrye in 1731. As the French were already at Kaministiquia in 1730, this time and place may be taken as a starting point for determining a rate of westward movement. The Seven Years' War has been cited as a factor in curtailing French expansionist ambitions. War activities contributed to a hiatus in fur trading expansion. Nevertheless, this interruption is a fact that can be expected to be visible on a graph spanning this period. The fur trade next came under the domination of Anglo-Montreal traders. As the Pedlars' expansion was facilitated by employing French expertise, the length of time required to reestablish the more distant French posts is hardly expected to be evident. Subsequently, many of the Montreal Pedlars became principals and shareholders in the North West Company, a distinction that does not need to be maintained because of the continuity of this development. A composite rate of western expansion by the French, Pedlars/North West Company and Hudson's Bay Company into western North American districts between 1725 and 1825 is presented visually with a third order polynomial curve fit as Figure 7. (based on data in Appendix 2).

Figure 7 illustrates the rate of expansion into the Red, Saskatchewan, Columbia, English, Athabasca, Mackenzie, Peace River and New Caledonia districts, from Kaministiquia, Grand Portage and Fort William by the French, Pedlars and North West Company, and from York Factory, Albany and Severn by the Hudson's Bay Company. The trend observable for all districts and ventures appears in a generalized form. The overall trend is a rate of inland expansion that increased until about 1775. After this date it stabilized at a rate of approximately 40 miles per year until amalgamation in 1821. At this level of generalization, the fur trade spread over the North American geography at a fairly regular rate, or distance per unit time.

The above commentary relates to a combined data pool. Plotting sites according to the major fur trade groups results in more specifically delineated distance/time relationships. These may be presented for the French, the later North American-based trade, and the English as the Hudson's Bay Company. The profiles for each of these divisions is portrayed in Figure 8 (derived from data in Appendix 2). Figure 8 illustrates the rate of inland expansion for three major groups. This Figure presents, separately, the component data used to generate Figure 7. Figure 7 indicates a skewed or dampened effect compared to the rate of expansion by each

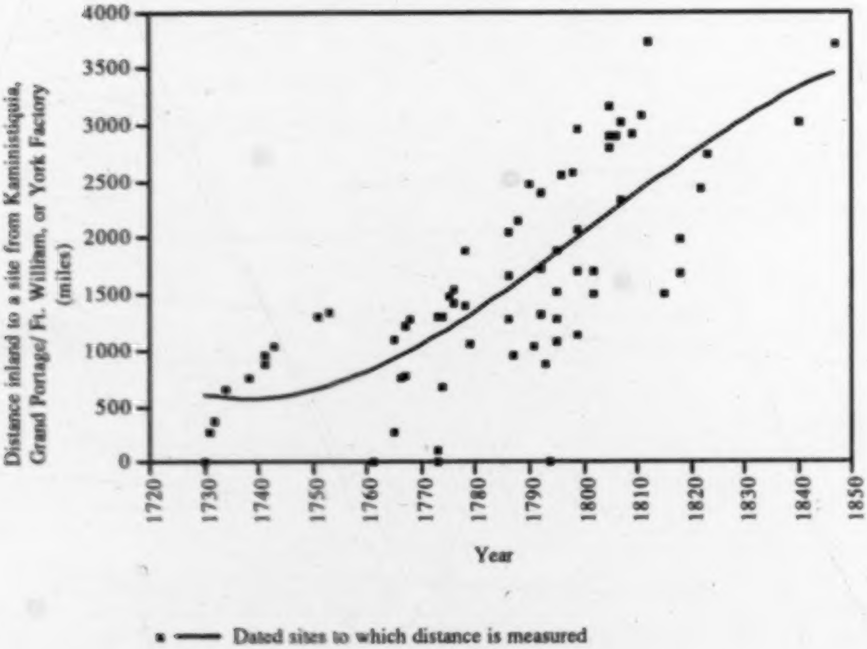


Figure 7. The composite rate of westward fur trade expansion to the newest and most distant fort sites for the French, Pedlars, North West Company and Hudson's Bay Company.

competitor. The rate of French expansion to the Red River, Assiniboine River and to the Forks of the Saskatchewan River compares well to later trading ventures. During approximately 25 years of expansion into *la mer de l'ouest*, the average rate of expansion was more than 60 miles per annum. Even the massacre of 21 Frenchmen by Sioux at Lake of the Woods in 1736 did not deter westward movement. French expansion was marked by the construction of new posts up to 300 miles from previous ones. The establishment of forts La Reine, Dauphin, Bourbon, and Paskoyac in the 1738-41 period indicate that French expansion also became more broadly-based geographically. Their presence in the Red River region was not expanded upon after 1741. The pace and distances of new construction on the Saskatchewan River during the later 1740s and 1750s perhaps mark a slowing trend. Given this generalization, the possible exception of Fort La Jonquière deserves comment.

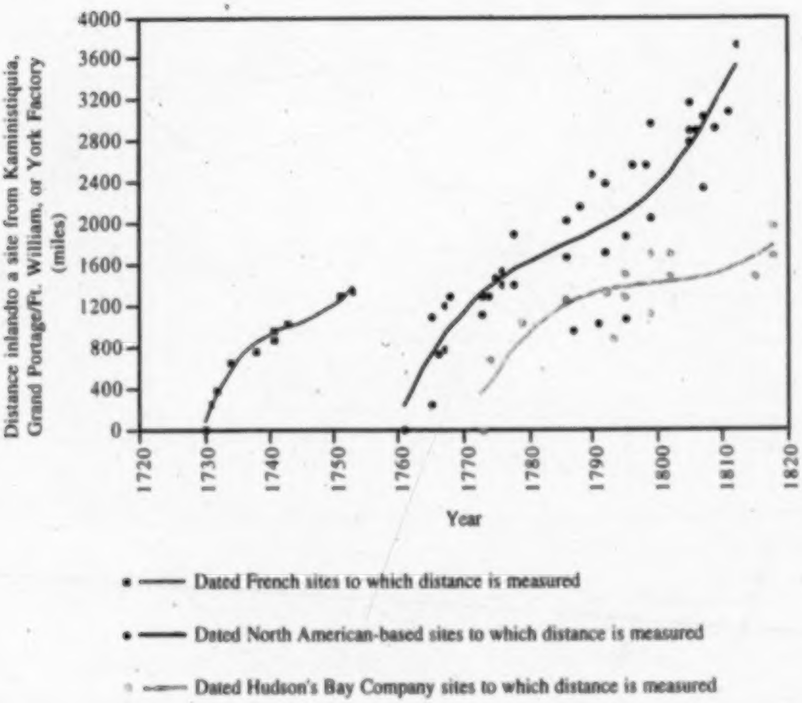


Figure 8. Comparative rates of expansion west of Kaministiquia, Grand Portage and Fort William, and from York Factory.

If Fort La Jonquière was constructed in 1751 near the base of the Rocky Mountains, it was by luck and fortitude. Rather than a success, it marks an exception outside the profile of French expansion. Almost immediate abandonment of the location in 1751-52 signaled inability to capitalize on its establishment. The conventional view is that French decline in the west during the latter half of the 1750s can be attributed to the threat of renewed English-French hostilities and to the Seven Years' War. The abrupt termination to French expansion after 1754 provides a link to Wallace's remark (1954:2) that, "by the time Wolfe and Montcalm met on the Plains of Abraham on September 13, 1759, there was no Frenchman, save an occasional straggler, left west of Lake Superior." The maximum westward extent of French expansion, almost 1,500 miles beyond Kaministiquia, is shown in Figure 9.

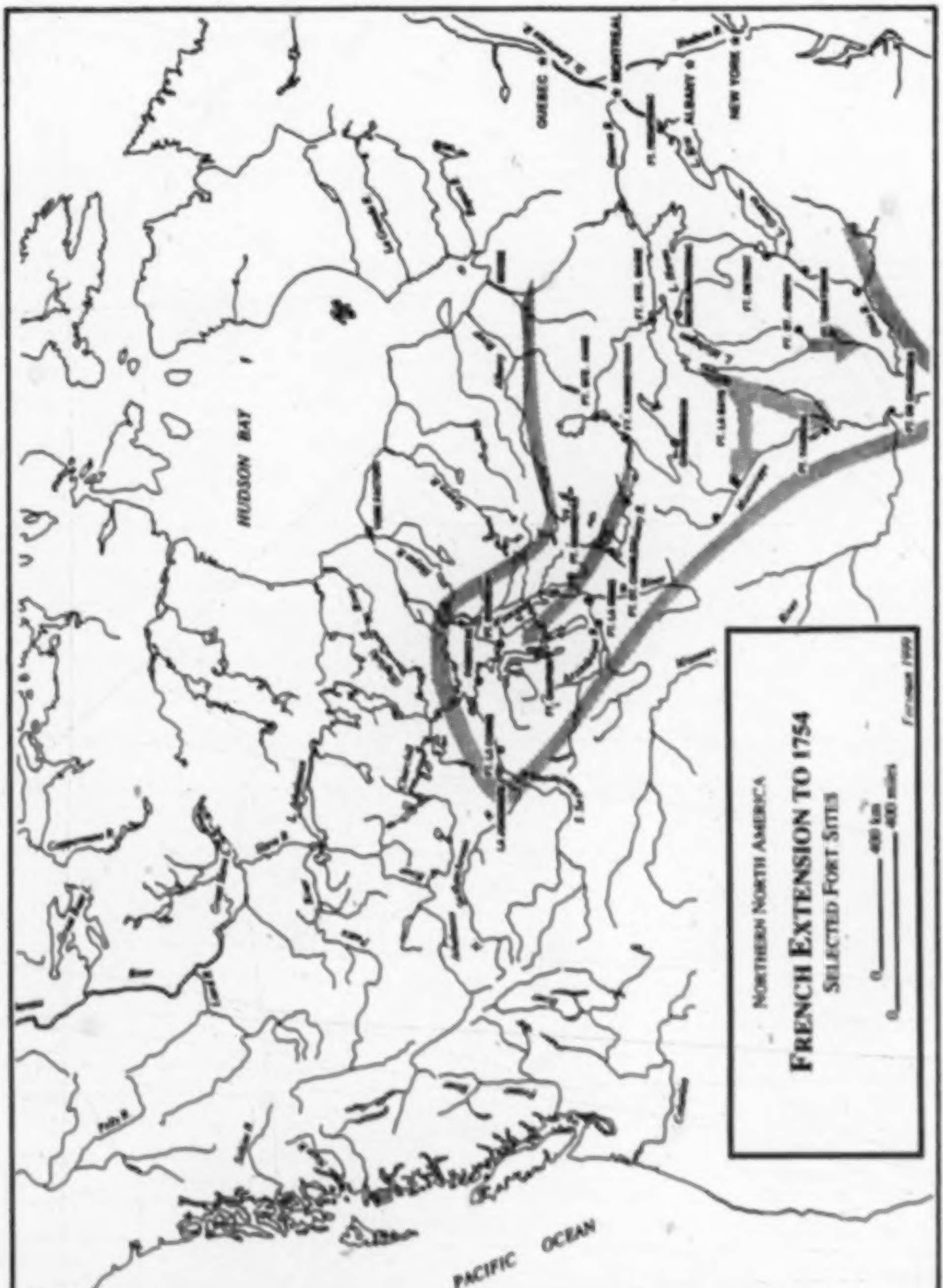

NORTHERN NORTH AMERICA
FRENCH EXTENSION TO 1754
SELECTED FORT SITES
0 400 km
0 400 miles
HUDSON BAY
PACIFIC OCEAN
QUEBEC
MONTREAL
ALBANY
NEW YORK

Figure 9. French territorial extension to 1754.

The North American-based ventures followed a trend comparable to the French. During the first 25 years of the Pedlars' expansion beyond Lake Superior, their approximate rate of extension was hardly more than the French. Between 1775 and 1795 there was a slower rate of expansion along the North Saskatchewan River than into the Peace and the Mackenzie River districts. After this date, however, forts were rapidly established at ever greater distances to the upper North Saskatchewan River, and down the Mackenzie, Columbia, and Fraser rivers.

The Hudson's Bay Company profile shows an initial rapid rate of expansion inland from York Factory to Cumberland House, and then to Hudson House, but after 1780 until about 1815, the rate at which the frontiers of the Hudson's Bay Company expanded slowed markedly. During this period, the company was limited to movement along the North Saskatchewan River, to the upper Churchill drainage and, near the end of the period, to the establishment of Fort Wedderburn on Lake Athabasca (Figure 10). Hudson's Bay Company expansion, then, occurred at a slower rate and took place within frontier boundaries circumscribed by the North American-based companies. The Hudson's Bay Company, in its not keeping pace with the rapid and extensive expansion of the North West Company, should not be seen as so much constrained by the combative tactics of its competitor as limited by manpower and other resources better allocated to efficiency within its present area of operation. Given profitability in an established market area, the Hudson's Bay Company could then ignore the more expansive territoriality of its competitor in any negotiations regarding a business merger.

The overall rate of territorial expansion marked by the construction of fur trade forts is now compared to the Model of Fur Trade Architectural Diversity (Figure 11, derived from data in Appendices 1, 2). Although the *y*- and *yy*- axes pertain to different sorts of data, changes in the fitted forms of curves may still be examined in relation to a common temporal, *x*- axis. This comparison is made by overlaying one profile on another. Overall, these two profiles show correspondence in timing and rate of increase. Generally, the renewal of the fur trade after 1760 was marked by increasing rates of expansion and architectural diversity. During the most rapid phase of expansion and increasing diversity, from about 1780 to 1820, a frontier extension every 400 miles was accompanied, on average, by an additional structure. Given that these are composite graphs and that the greatest rates of increase occur post-1760, more particular comparison of expansion and diversity is obtained by discriminating

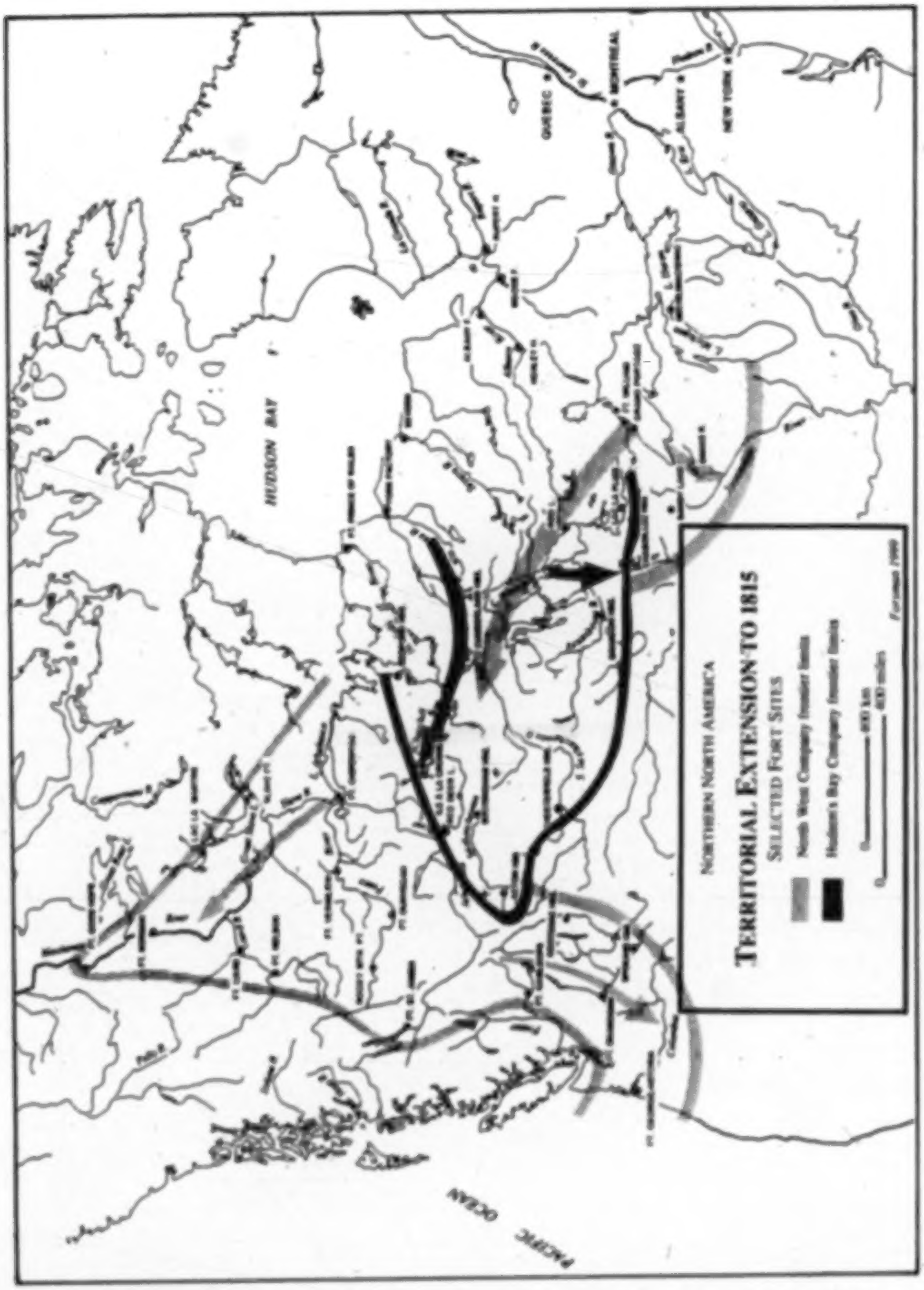

NORTHERN NORTH AMERICA
TERRITORIAL EXTENSION TO 1815
SELECTED FORT SITES
North West Company frontier limits
Hudson's Bay Company frontier limits
HUDSON BAY
PACIFIC OCEAN
QUEBEC
MONTREAL
ALBANY
NEW YORK

Figure 10. North West Company and Hudson's Bay Company expansion to 1814-1815.

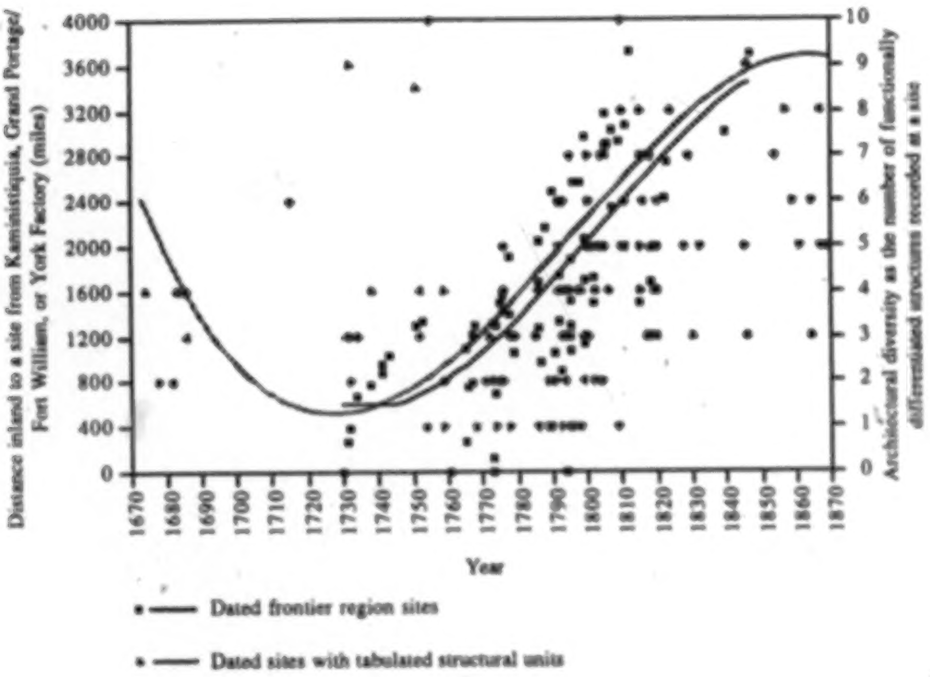


Figure 11. A model of the overall rate of expansion laid over architectural diversity.

between the North American-based and the Hudson's Bay Company sites (Figure 12, derived from data in Appendices 1, 2).

During the initial fur trade expansion of the Pedlars and early North West Company, the linear profile indicates the beginning of a trend towards increasing architectural diversity. In reviewing the data upon which this curve is based, Appendix, 1, however, the average architectural diversity at sites ranged from two to three differentiated structures per site until the late 1770s. At this date the territorial extent of the Pedlars covered the Lower Red and Assiniboine River district, part of the Swan River and Red Deer River region, up the North Saskatchewan River to about Eagle Hill, and reached about as far as Pond's Fort on the lower Athabasca River, when their rate of expansion slowed. With the exception of Pond's Fort, most of this trading frontier was within 1,500 miles of Grand Portage. A trend towards increasing

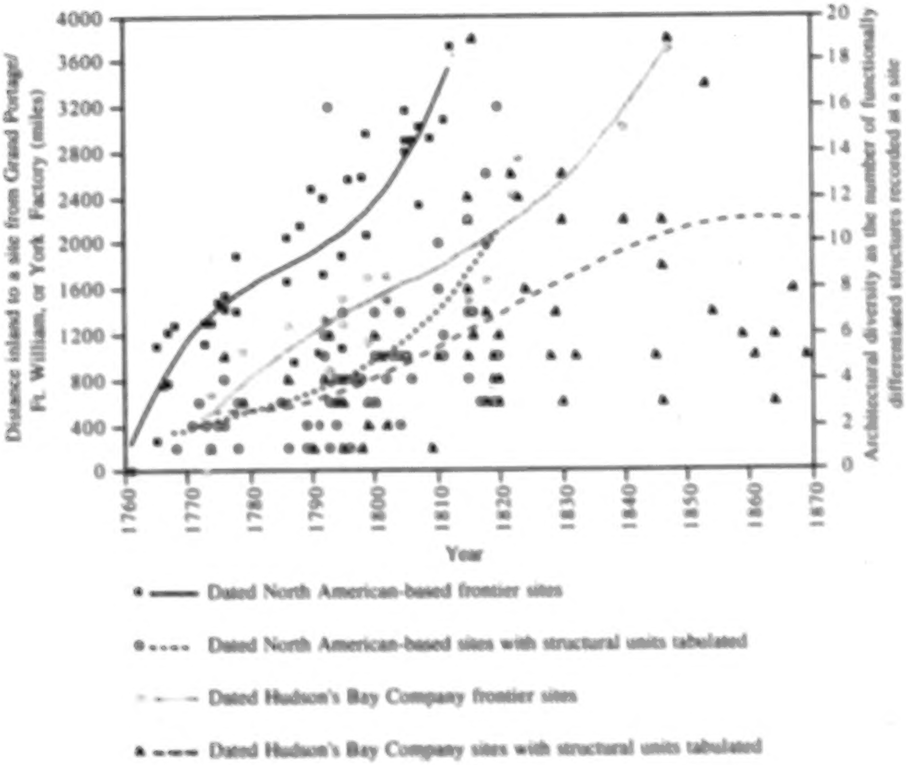


Figure 12. The profiles of expansion laid over architectural diversity, North American-based and Hudson's Bay companies.

architectural diversity was more evident after 1785, followed by an accelerated rate of expansion after 1795. By the time a distance of 3,000 miles from Ft. William was reached, before 1808 on the figure, there was an average of six or seven different structures per site. Earlier French expansion had comparably slowed and terminated on the Saskatchewan River at about 1,200 miles from Kaministiquia and the architectural diversity of their frontier sites, at this distance, also remained within a low range.

The profiles for the Hudson's Bay Company display different profiles of inland expansion and architectural diversity than those of the North American-based companies. Between 1780 and 1815, when the Athabasca district was successfully established with the construction of Fort Wedderburn, the overall rate of expansion by the Hudson's Bay Company was much slower. Until about 1795, however, its architectural diversity was slightly greater. After this date, the number of Hudson's

Bay Company structures per site definitely began to increase at a rate only slightly less rapid than their competitor, notwithstanding a slower pace of expansion that lasted until 1815. During the Hudson's Bay Company's period of slower expansion, from about 1780 through 1815, the number of structures at their forts increased from an average of three per site to almost six. In this interval, the company extended their territorial presence only an additional 400 miles, from 1,200 to 1,600 miles inland from York Factory.

Conclusions

The subject of this chapter has been the geographical expansion of the fur trade. Archaeological and historical literature has traditionally described the rate of fur trade expansion subjectively and inconsistently. Here, quantitative information has been applied the problem, and as fur trade expansion took place over a broad period of time, it has been useful to consider measuring distances to newly constructed forts marking an expanding frontier, against annual units of time. The resultant linear construct to new forts in different regions, from basal depots on Lake Superior, and from York Factory on Hudson Bay, is an expression of the rate of expansion. The subsequent construction of forts within the frontier boundaries constituted other aspects of expansion, including infrastructure support. Still other forts, of course, marked strictly fur trading activity. Multiple site functions imply increased demands for personnel engaged in logistics, construction, and operations.

There are similarities and differences between the respective profiles of the North West Company and the Hudson's Bay Company regarding expansion and architectural diversity. Both companies expanded inland for a number of years without any change in the number of structures per site. At little more than 1,200 miles inland from their Lake Superior depots, first the French and then the Pedlars exhibited a small range of variation in the number of average structures per site. Similarly, the Hudson's Bay Company profiles indicated two to three structures per site at distances under 1,500 miles inland from York Factory. If a correlation exists between distance inland and an increasing number of structures per site, there is no associated constancy in relation to the time scale. The North West Company expanded approximately 800 miles, from 1,200 miles to 2,000 miles, during an interval of two decades, 1770 to 1790. During this period the number of structures increased by an average of one. The Hudson's Bay Company, on the other hand, required almost 30 years to expand a lesser distance, 400 miles, but their architectural diversity increased threefold.

Fur trade settlement westward from Grand Portage and Hudson Bay expanded across North America at different rates. Expansion, for the North American-based trade, best fit Wallace's (1934:21) characterization of pronounced rapid expansion for a period post-1804. The rate at which North American-based frontier limits extended between 1760 and 1775 was relatively constant or possibly slowing rather than accelerating. Between 1775 and 1804, expansion progressed moderately and, after this date, could be said to have accelerated. Assuming all other things to be equal, the Hudson's Bay Company, once committed to establishing inland posts, should have penetrated much farther inland and more quickly because of its shorter travel distance. This was not the case as its expansionist efforts seemed limited to the Plains-Parklands and almost stalled along the North Saskatchewan River. Innis (1970:155) has suggested that part of its slower expansion could be blamed on their poor labour relations policies, but Mahonuk (1988) saw little difference between the companies in this regard. The shortage of manpower, instead, had more to do with the difficulty of obtaining men who were not already being taken into the Navy during the wars of the late eighteenth and early nineteenth centuries (Rich 1951:lxix-lxxviii). The Hudson's Bay Company never expanded as rapidly as its North American-based competitors throughout most of the competitive period, but after 1815, construction of Ft. Wedderburn marked successful expansion into Athabasca, one outcome of the Retrenchment or New System policies (Williams 1983:44).

In summary, the model of increasing territorial expansion beyond 1,500 miles appears contingent on increasing architectural diversity, but this correlation only became apparent after the competitive move by the Hudson's Bay Company to establish Cumberland House inland in 1774. Expansion and increased architectural diversity by the North American-based companies always preceded that of the Hudson's Bay Company, but on a scale of comparable distances inland, the Hudson's Bay Company had a greater diversity of structures per site than its competitor. Under post-amalgamation conditions, at least until about 1850, when the limits of Hudson's Bay Company expansion was reached on the Yukon River, sites continued to become more diversified.

Chapter 7

A MODEL OF THE RATE OF FORT CONSTRUCTION

By the late seventeenth century, fur trade rivalry among different interests and individuals was connected to a strong European demand, and fur trade forts were a prime infrastructure component of this commerce. Competition in the commercial sphere is seen as inextricably related to a rate of new fort construction, the size of forts, and the related engagement of human effort. The number of forts erected, per annum, is one measurement of the effort to sustain economic continuation.

As the fur trade proceeded beyond home bases, such as Montreal and London, the movements of traders into territories with which they were not habitually associated is analogous to migration and cultural intervention. It mattered little whether or not the incoming trading group was Native middleman traders, French, English or mixed blood personnel. The local success of the intruding cultural group could be facilitated by several factors, including the quality of the social relations between the trader and local Native group, an exchange rate of trade goods for pelts acceptable to both parties, and freedom from a local influx of trading competitors. This general outline also applied to the acquisition of provisions. It is proposed that competition among traders can be measured in terms of the frequency with which forts were established. The construction of more, or fewer, forts through time may have a relationship to frontier expansion, and architectural diversity. The juxtaposition of profiles from respective data enables comparative observations contributing to the discovery of previously unrecognized patterns and their explanation.

Historical Outline and Interpretations of Fur Trade Construction

During the French period of the fur trade, forts were few and far between. In the first ten years of western expansion, 11 forts were constructed. Although sometimes two forts were built in the same year, such as Fort La Reine and Fort Rouge, or Fort Bourbon (I) and Fort Paskoyac (I), the overall average for the period was about one new site per year. After 1741 fewer new forts followed, although it appears that most of the existing forts were manned and maintained throughout the 1740s and well into the 1750s. The rate of new construction slowed after the Saskatchewan River had been reached, and some of the activity consisted of rebuilding forts burned by the Natives. Fort la Reine was burned twice, and Fort

Maurepas once (Innis 1970:94, Brymner 1887:clxvii). Most of the new construction took place during the administration of the western posts under Pierre Gaultier de la Vérendrye, who was replaced by the Sieur de Noyelles in 1744. In 1749, La Vérendrye was to have retaken command, but with his death in December, the command was passed to Jacques Le Gardeur de St. Pierre, Sieur de Repentigny. In the early 1750s a smaller series of posts and forts were erected, most of which were connected to exploration and exploitation of the Saskatchewan route and district. This flurry of activity was geared to reestablishing and relocating Fort Bourbon and Fort Paskoyac, and the construction of lesser dependencies.

Although the Treaty of Paris, formally ending the Seven Years' War, was not signed until 1763, Montreal and the rest of New France had surrendered in 1760 and several entrepreneurs were immediately keen to resume westward ventures. Alexander Henry the elder, who already had fourteen years of experience in the fur trade, arrived at Grand Portage for his first trip into the *pays d'en haut*. Notwithstanding this experience, he was so struck by the degree of competition that he observed the traders "in a state of extreme reciprocal hostility, each pursuing his interests in such a manner as might most injure his neighbour" (Bain 1969:235). In 1768 Governor Jacobs at York Factory "urged the Governor and Committee in London to face the competitive situation by sending the wintering servants inland in a body to build a house or houses in the most convenient places...to stop the Pedlars from robbing the Company of its trade" (Morton 1939:279). On the part of the Hudson's Bay Company, Jacobs in 1769 again suggested construction of an inland post, possibly at Grand Rapids (Morton 1939:280). Morton referred to Governor Jacobs in 1772 losing faith in the scheme of sending servants inland to attract Natives to the Bay-side posts. A practice of smuggling furs into the fort and to the ship had also developed, and there were threatening demands beginning to be made by Indian leaders for greater benefits. Despite the Hudson's Bay Company's practice of sending servants inland annually, Natives were still being won over to the Pedlars' trade. Andrew Graham at York Factory in 1772 concluded that "the only way of increasing the Fur Trade is to have an Inland Settlement" (Morton 1939:283). Exercising the Factor's degree of freedom to take initiative, he sent Cocking inland for a better account of things (Morton 1939:284).

Notwithstanding the Frobishers' historical assertion to General Haldimand that no fur trader was successful in proceeding from Michilimackinac westwards beyond Lac La Pluie until 1767 (Wallace 1934:70), Morton cited other documentation that Montreal traders may have been in the Lake Winnipeg area as early as 1764. At this time a Native reported that Montreal Pedlars had been coming "to the country back of the Company's forts with fifteen canoes and a body of men" (Morton 1939:267). Cocking's encounter with an old *engagé* suggested that François had been into the Lake Winnipeg area, if not onto the Saskatchewan, during the French period (Wallace 1954:6), continued his trading involvement probably as an independent, and possibly entered into a partnership with James Finlay that lasted to about 1767-68. The renewed activity focused first on the Red River and Assiniboine regions. In 1766 William Tomison reported to the Hudson's Bay Company that its competitors had two houses on the Red River and three more "to the westward" (Wallace 1954:5). Of these, one was commanded by an Englishman and the rest by Frenchmen. The sporadic pooling of commercial interests did not have the desired effect of limiting competition and reducing the number of posts, as the initial partnerships were too small, and of short duration. By 1775, larger organizations of traders began to be formed, and in 1779 a 16 share concern was formed of nine or ten interests (Davidson 1918:9). The success of this venture and other combinations led to an agreement in 1783 under the name North West Company.

The construction of posts, then, became carried out by fewer interests. The overall reduction in the number of competitors did not prevent challenges from smaller companies entering the Northwest and constructing new forts. M'Gillivray in 1795 wrote that Cuthbert Grant's Red River

> Department is entirely ruined by different interests:- his opponents this year are very numerous having no less than 14 Forts to oppose, which with 7 belonging to the Company [North West Company] amounts to 21 forts in R.R. Peter Grant with 4 Canoes, and the H.B. Company with 5 Boats have entered there last Fall, as also an adventure of 17 Canoes by Michilimackinac, some of which is suspected as destined for Fort des Prairies next summer there being so little appearance of making returns, that a considerable quantity of goods will remain for that purpose. (Morton 1929:58)

John McDonnell commented on the Red River situation by indicating that the Hudson's Bay Company was able to get into the district a month earlier than the North West Company, and thereby obtain most of the trading commitments (Morton 1929:58). Thorburn at Fort Espérance on the Qu'Appelle River similarly considered his "expectations of returns...vague and uncertain" (Morton 1929:59). The intensity of the competition was such that the North West Company anticipated eliminating the Grants [brothers Peter and David], by "such a Check this year that they will never attempt another Campaign against the North West Company" (Morton 1929:59). This objective was accomplished by building small competitive posts nearby. The effectiveness of this policy was indicated by the absorption of the Grant competition in 1796. After 1797, a more determined competition began to take place between the North West Company, Forsyth, Richardson and Company, and Parker, Gerrard and Ogilvy. The smaller companies amalgamated, obtained new members, and evolved through name changes including New North West Company, the XY Company and, eventually, to Sir Alexander Mackenzie and Company. The smaller company amalgamated with the North West Company in late 1804. All of this competition was manifested in more post construction than would probably otherwise have been the case. After 1804, a fewer number of posts were open along the North Saskatchewan River. Attendant to this decline was less frequent new construction. Nicks (1969:27, 28) recognized only the construction of Terre Blanche/Edmonton House in 1810 in what is now Alberta.

There are no sound archaeological and historic estimates to the total number of forts constructed through time. One archaeologist has seen a trend in his data to fewer, larger, and more functionally diverse forts following amalgamation between the North West Company and the Hudson's Bay Company in 1821, in order to decrease operating costs (Pyszczyk 1992:37). The trend to fewer forts was linked to the recognition that George Simpson closed redundant posts after amalgamation; i.e., the linkage was an economic one due to a particular historic event. The duration of this trend and its proportional reduction, chronologically, has yet to be indicated.

The numbers of forts may have been linked to other aspects of the fur trade, such as the qualitative character of construction. An assertion, for example, that "simple and crude" architecture resulted from rapid expansion and associated impermanence (Pyszczyk 1992:34), implies that more forts would be built when their occupation was shorter, but would require a fuller analysis than was given. The terms simple and crude lack definition in the context of the period to which they are applied. Such terms are more easily defined in hindsight and only subjectively does one recognize later forts as finely finished. There is a risk that modern sensibilities are being projected to an historic past, and that overly great significance has been given to 1821 as a demarcation between two temporal periods and two architectural states.

The implication is that cessation of competition led to an architectural shift to reflect characteristics of permanence, complexity and maturity. If this was so, the development of these qualities at sites pre-dating 1821, Fort Chipewyan for example, becomes problematical. At the other extreme, later sites associated with expansion and brief occupation, Forts Anderson and Yukon, for example, must also have the relationship between these factors and qualitative construction reconciled. Even the Bayside forts, which did not mark expansion, were impermanent in the sense that they did not last longer than 25 or 30 years (Kenyon 1986: 88). The topic of fort or building longevity is obviously large and complex and, although not part of this study, might be more fruitfully examined within a context that includes an awareness of the overall rate of construction.

By the late eighteenth century the provisioning trade became well developed and a regional hierarchical structure influenced relationships between forts. At the pinnacle of the hierarchy was the regional supply depot and headquarters. These carried out a number of functions including fur trading, provisioning, and the redistribution of trade goods. Intermediate in size and importance between depot sites and wintering posts were the District posts. These sites were occupied by a factor, bourgeois, or shareholders of the company. It is not an uncommon perception that wintering posts were small and occupied only during the winter months. Some of these small sites, however, were also occupied during the summer, sometimes to protect un-traded goods. On 22 July 1754 Anthony Henday arrived at a small, occupied French house on the Saskatchewan River, the other inhabitants having departed with the season's furs (HBCA B. 239/a/40). On 20 June 1776, Edward Jarvis noted that six men were present along with a large quantity of furs at Michipicoten, where there were two small forts, although the 'Masters' were not there that summer (HBCA, E. 2/6). Some large sites, on the other hand, might be abandoned during the summer when other, smaller posts remained open. Rocky Mountain House is an example of one of these larger sites. Although some sites technically remained open during the summer, the size of their complements was frequently so small as to form little distinction between open or closed. At Mackenzie's Fort Fork erected in 1792, sufficient timber was collected by a small work party to form a stockade of 120 feet by 120 feet. Of a winter complement of about 24, two remained over the following summer (Mackenzie 1971:152).

The Model of Architectural Diversity, as proposed in this thesis, and at the most general level, subsumes the importance of hierarchical organization inasmuch as the numbers of depots, posts, and wintering posts are all included. Problems that would have to be addressed in a study of site hierarchical structure would be the use of conflicting historical terminology, the significance, scale, and role of summer occupancy or abandonment, and inter-site relationships. The frequently subjective and changeable descriptions of these characteristics in fur trade literature are obstacles to easy objectification. This is merely to state that distinct models of diversity based on fort and post categories are not a part of this thesis, although such an analysis might well be useful in another study. Here, instead, an overall or generalized construction rate is attained by counting the number of forts built per year, regardless of hierarchical position.

Modeling A Rate of Fort Construction

A rate of fort construction west of the Great Lakes is modeled by tabulating the numbers of posts constructed annually, and fitting a curve to the data from 1670 to 1870. The model is not exclusive and can accept the addition of new information. This overall, generalized model incorporates a broad data base that, in turn, can be broken down into more specific categories and profiles. At these refined levels, trends in the rate of construction of the North West Company and Hudson's Bay Company are compared. If time and distance are factors in examining fur trade expansion, they are also a marker of construction in the acquisition of new territory, infilling, and infrastructure support. The rate of fur trade construction must therefore be compared to the model and profiles of expansion, and architectural diversity.

Implicit in competitive expansion is not only the distance traveled in order to reach a specified point, but also geographical spread, and infrastructure support. One possible means of collectively measuring these factors is to assume that there might be some correlation to the total number of posts in existence. It is therefore of interest to count a large number of posts and order them chronologically. Within the territory defined by the most distant frontier establishments, many subsequent posts were constructed. This in-fill of later posts involved the establishment of improved lines of communication, infrastructure support, and an attempt to establish commercial dominance by locating new posts wherever competitors became established. Of all the sites reviewed for this study, less than 70 marked the pace of frontier expansion. The remainder of the sites constituted infrastructure and consolidation, and fort rebuilding and relocation. The construction of a fort by any one company frequently resulted in direct competition from other traders, who then established one of their own nearby.

One means of comparison might be accommodated by tabulating the number of forts within a trading region, for a limited period, and comparing them to those of other regions for the same time frame. In a study of the Little North country, between Lake Winnipeg and Hudson Bay, and south of the Hayes River, Lytwyn (1986:114) recorded that in 1805-1806 the North West Company had twenty posts, and that the Hudson's Bay Company had nine posts. Although not all of the sites were known by their names or dates of establishment, the North West Company had twice as many sites as the Hudson's Bay Company. Along the North Saskatchewan River the ratio was closer to 1:1. The problem with this approach is that trading regions were frequently in a state of flux, so that one would probably have to resort to arbitrary means in order to assign them to different groups. Arbitrary divisions can be avoided by considering the sample in its entirety; i.e., as a whole. The discussion of sub-regions is not an object of this chapter; rather, the goal is to consider the number of forts constructed in their totality. This approach contributes a background, and context, for anyone wishing to undertake a regionally specific analysis at a later date.

In this thesis, I regard post construction as a quantifiable expression of effort that was common to competition. New forts could not be built unless it were economically possible to do so, and infers a cost to profit relationship. Short term losses were only tolerable in the context of expected, eventual profit. An abundance of posts within a confined area might have contributed to losses not covered by their returns, but the intent was to disallow another company to be established in isolation where it might garner an unchallenged share of the trade. The construction of new forts, with increasing architectural diversity, contributed to rising costs, which might or might not result in a larger market share, more returns and increased profits. The risk factor was problematical in that success of this policy could only be determined sometime after the construction event.

The rate of construction has been selected for examination because construction, rebuilding, and maintenance reflect interrelated social and economic factors. Manpower had to be allocated. Wages and salaries had to be expended for middlemen/labourers, steersmen, guides, interpreters, clerks, and officers. House construction was required, and stores built and stocked with goods offered for sale.

Operational costs included a means of subsistence, such as fishing nets, twine, hunting and gardening implements, and provisions transported inland and obtained through trade with Native groups. All of these factors may have borne a relationship not only to the number of sites constructed but also to their architectural diversity. The generalized model of fort construction and its constituent profiles must be compared not only to those for expansion, but also to the model and profiles of architectural diversity.

The data sample for construction tallies more than six hundred sites. As old sites were sometimes abandoned and rebuilt nearby, but retained the same name, these sites are tabulated individually. Posts that underwent a simple name change, but without rebuilding, are recorded once, usually under the earlier and better known name. The dates of construction and/or date of abandonment are not known for all sites. The duration of many posts is another problem. The only consistent means of compiling temporal construction data is to accept the admittedly sometimes conjectural interpretation of historians and archaeologists, as was done in the preceding chapter. Where initial dates of construction are not available, the year in which the site is reported is given. When old or abandoned sites are described in the literature, then the immediately antecedent calendar year is arbitrarily used. Sites without location or temporal references, named or unnamed, are not included. It is proposed that this methodology will provide a balanced convention for possible errors in accuracy. Not exhaustive, the sample is large enough to allow the investigation of the data base for trends in construction through time. As in the chapter on fur trade expansion, graphs are used as an aid to the recognition of trends within the data.

As with architectural diversity and rates of inland expansion, a generalized model is developed by incorporating all of the site data pertaining to fort construction through time without regard to company affiliation. The construction and major rebuilding of new posts, for all companies through time, is presented with a third order polynomial curve fit in Figure 13 (derived from data in Appendix 3).

The rate of fort construction accelerated through the eighteenth century and declined during the nineteenth century. The most forts, posts, and outposts built were 25 in 1795, and again in 1799. The fitted curve reflects this number with a graph that reaches its zenith around 1800. After 1810, the overall rate of fort construction declined. As a graph incorporating pooled data from French, Pedlars, North American-based companies, and the Hudson's Bay Company, the resulting line is termed a generalized model of fort construction.

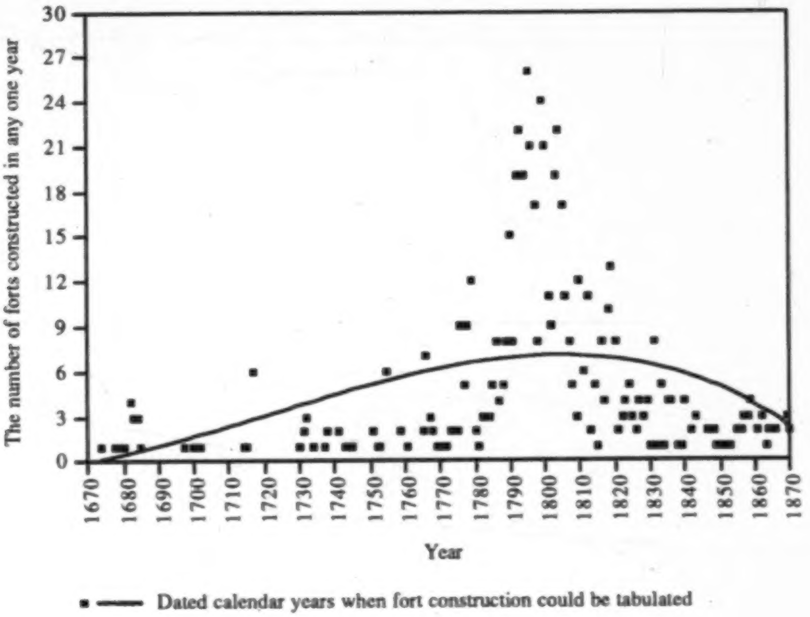


Figure 13. A model of the rate of fort construction.

It was stated earlier that generalized graphs mask the range of variation that may have been present within contributory categories of data, such as the separate trading ventures. Closer examination is given to the core period of most intense construction, 1760 to 1820. The profiles for the North American-based companies and the Hudson's Bay Company are given in Figure 14 (derived from data in Appendix 3).

The scale of the *y* axis in Figure 14 has been changed from that in Figure 13 to accentuate the vertical dimension and clarify the forms of the profiles. Between 1760 and 1820 the rate of construction for both groupings continually changed. For the Pedlars and the North West Company, the rate of construction increased rapidly from the date of entry into the Northwest and peaked in 1800. Afterwards, the rate of construction declined rapidly until amalgamation in 1821. The Hudson's Bay Company profile indicates that there was an initially rapid rate of increase in the numbers of forts constructed per year from 1774. Its rate was not as steep as that

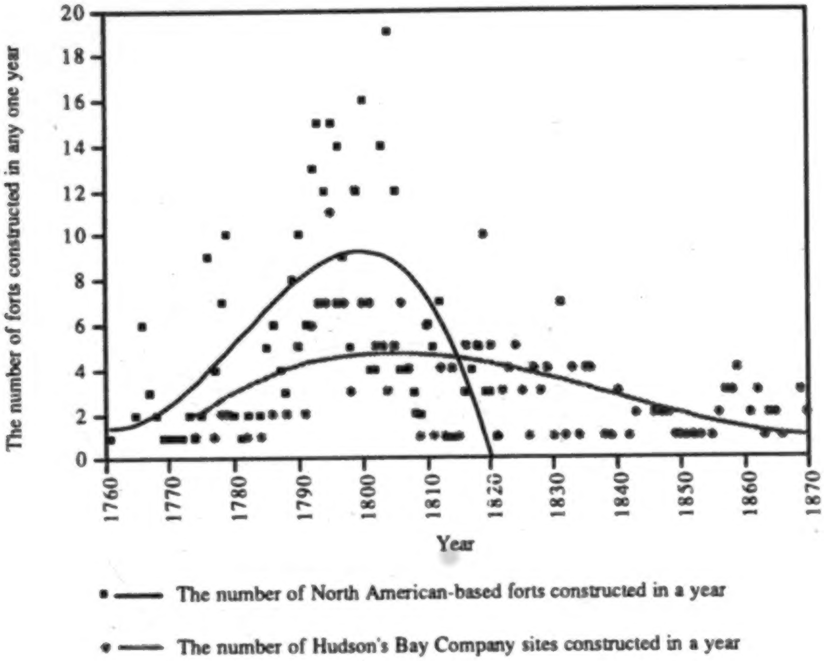


Figure 14. Comparative rates of fort construction for the North American-based and Hudson's Bay Companies.

of the North American-based ventures and there was a perceptible slackening in the rate of increase by 1790. In 1800, the number of Hudson's Bay Company forts constructed per year averaged about one-half that of the North West Company. Unlike the North American-based traders, however, the Hudson's Bay Company essentially stabilized its rate of construction throughout the remainder of the competitive period. Leaving these company rates of construction aside temporarily, the next step is to examine the overall construction profile relative to inland expansion.

Fort Construction and Inland Expansion

A general rate of fort construction in the period from 1670 to 1870 is compared to the model of territorial expansion in Figure 15 (derived from Appendices 2, 3). The juxtaposition of the two models spans the period from 1670 to 1870, and included data

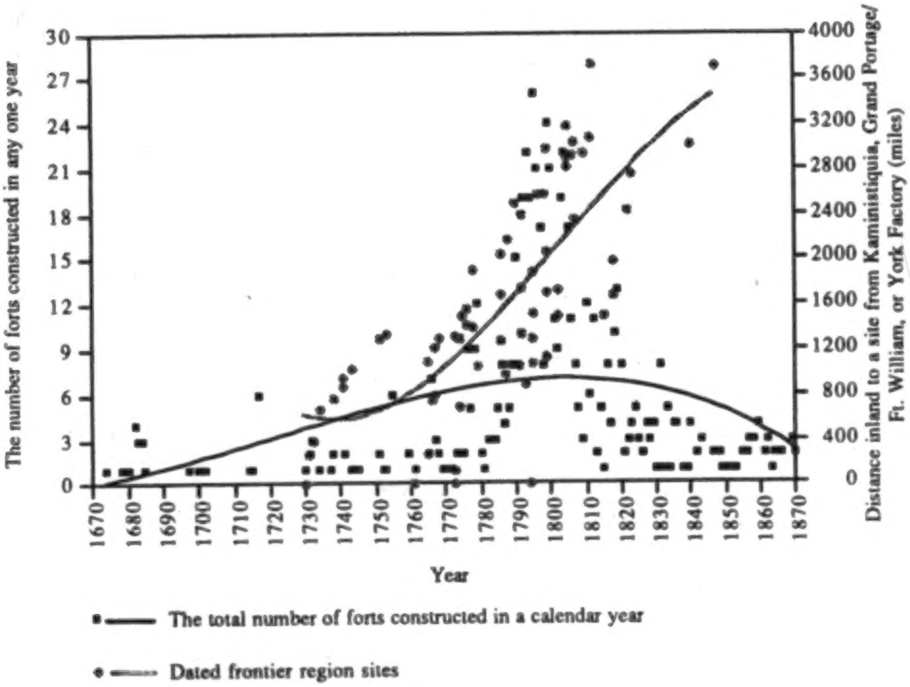


Figure 15. A model of the rate of fort construction laid over inland expansion.

from the French, Pedlars, North American-based companies and the Hudson's Bay Company. The rate of inland expansion was only taken from 1731 when the French began a determined effort to explore and trade to *la mer de l'ouest*. After this date the number of forts constructed and the distances traveled inland increased steadily. Although overall fort construction peaked in 1800-1810, the rate of expansion showed no change. The peak construction period correlated to an average distance almost 2,400 miles from a base depot. The rate of expansion continued beyond the end of competition, but the rate of new construction decreased.

If it is assumed that frontier boundaries extended together with an increase in the number of forts, then the apparent divergence of the models by 1810 requires explanation. One possible factor was a depletion of furs from overhunting, with a need for fewer forts, but there had been no conspicuous decline in the number of beaver exported during the immediately preceding period from 1793 to 1808 (Innis 1970:265).

It may also be that the supply of fur and provision resources within a 2,400 mile frontier were essentially adequate to meet local and export demand, and therefore there was less need for new construction. Improved geographical awareness, and improvements in transportation, such as a developed brigade system, and increased use of the York boat and Red River cart probably influenced decisions as to the establishment of longer-term commitments at particularly advantageous inland supply, communication, and trading locations. Yet another possibility is that the North West Company was losing its competitive grip by 1810 and with the Hudson's Bay Company pursuing an effective slow growth course, neither felt a need to increase the rate of construction. All of these factors contribute to an explanation of the observed divergence.

A more detailed examination of the rate of fort construction and inland expansion is undertaken with reference to the major competitors as done in previous chapters. The inference is that the rates of fort construction and inland expansion for the North American-based ventures and the Hudson's Bay Company may not be the same. The respective profiles of fort construction and expansion for the two divisions of competitors are given in Figure 16 (derived from Appendices 2, 3).

There is some comparability between the profiles of fort construction and expansion until 1800, as all are in general ascendancy. In the period around 1775 the Pedlars were constructing an average of four sites per year within territorial limits that extended 1,500 miles from Grand Portage. By 1800, the Nor'Westers were establishing nine sites per year within a commercial frontier that averaged almost 2,400 miles from Grand Portage. In 1815, their transportation links extended over 3,500 miles, but the rate of fort construction had fallen to four per year. The form of the profiles indicated a divergence after 1800, with a continuation of geographical spread but with fewer and fewer sites constructed annually. Considering that some of the new sites marked expansionist trails, this overall decline in construction is noteworthy.

The rates of fort construction and expansion for the Hudson's Bay Company were different from those of the North American-based companies. Whereas the Nor' Westers continued to expand even after the number of posts being constructed was in decline, the Hudson's Bay Company profiles showed a hesitation in expansion following 1790 almost concurrent with a slight decline in its rate of fort construction.

By about 1815, the Hudson's Bay Company renewed its efforts at territorial

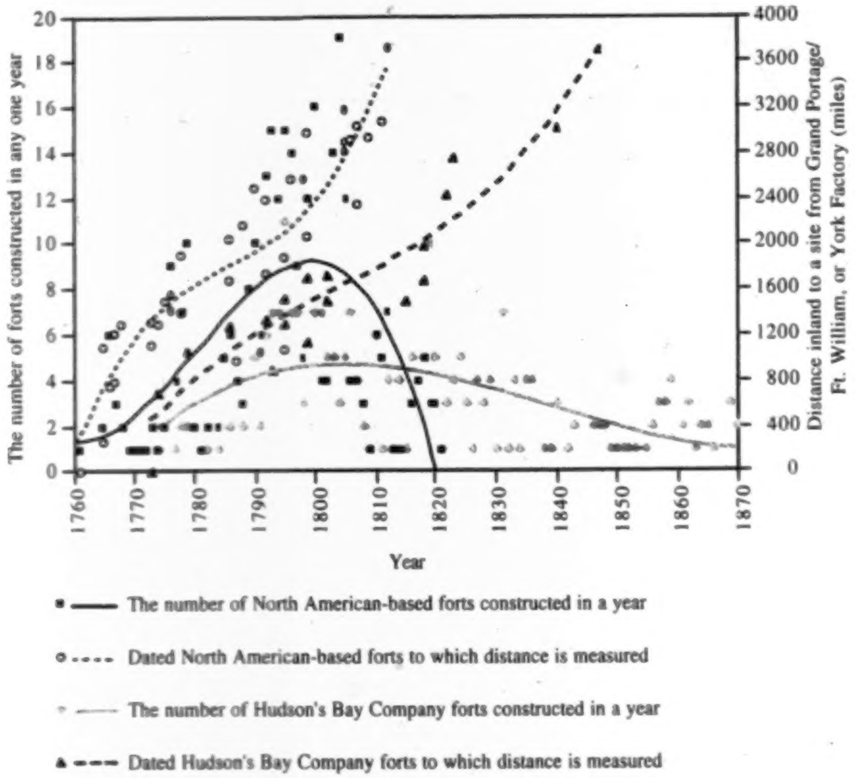


Figure 16. The profiles of fort construction laid over expansion, North American-based and Hudson's Bay companies.

expansion and increased its rate of construction. Although the North West Company had vastly outstripped its competitor in territory covered, its number of forts under construction continued to fall, a trend divergent from the Hudson's Bay Company until amalgamation. From 1821 to the end of the nineteenth century, the number of posts constructed by the Hudson's Bay Company fell into gradual decline.

During the peak period of North West Company post construction around 1800, when about nine posts per year were being constructed, the Hudson's Bay Company built about five per year. At the same time, the North American-based trade reached a frontier 2,400 miles distant, but the Hudson's Bay Company was still within a 1,500 mile limit of York Factory. Renewed Hudson's Bay Company expansion, post-1810, was achieved with a lower construction rate than at an earlier period. For the two sets of profiles, there was no proportionate correlation between the rates of fort construction and territorial expansion, but by 1815 the Hudson's Bay Company constructed about the same number of forts per year as the North West Company, and began to expand effectively into the hotly contested Athabasca district.

Fort Construction and Architectural Diversity

Although the Model of Fur Trade Architectural Diversity defines the chronological trend of increasingly differentiated activities tied to structures, it also needs to be delineated in relation to a rate of fort construction. The model of the general rate of fort construction is laid over the model of architectural diversity in Figure 17 (derived from Appendices 1, 3).

The first part of the curve is associated with a period when the Bay-side posts of the Hudson's Bay Company were being established and the French were attempting to gain a foothold in the same area. These sites included Albany, Moose, Rupert, and York. The inland sites of Detroit, Michilimackinac, and Ft. St. Charles were established yet later. The fur trade was initially carried out from forts in these areas around the shores of Hudson Bay and in the hinterlands of the Great Lakes, and had a moderate degree of architectural diversity. More remote inland posts, including Ft. à la Corne in Saskatchewan, Ft. Paskoyac in Manitoba, Lac Chamouchane in Quebec, and en-route sites along the Ottawa-Mattawa River route were generally characterized by one or two structures, and were only occasionally surrounded by a stockade. Toward the close of the French era, and certainly following 1760, an increasing numbers of posts began to be constructed, and were gradually accompanied by increased architectural diversity. This period was one of gradually intensifying competition among the Pedlars, with new ventures entering the field almost yearly. Among the sites associated with this period are Blondeau's Red Deer Lake post, the Pedlars' Sturgeon Fort, and François LeBlanc's/James Finlay's post. The typical functional diversity included the stockade, a general purpose house, and a third structure. This last might be used differently at various sites, whether for provisions (Red Deer Lake and Sturgeon Fort), or as a storehouse or blacksmith shop (LeBlanc-Finlay post). The rate of increased architectural diversity continued through the period of competition between the North West Company and the Hudson's Bay Company. The greatest period of fort construction took place within a time range

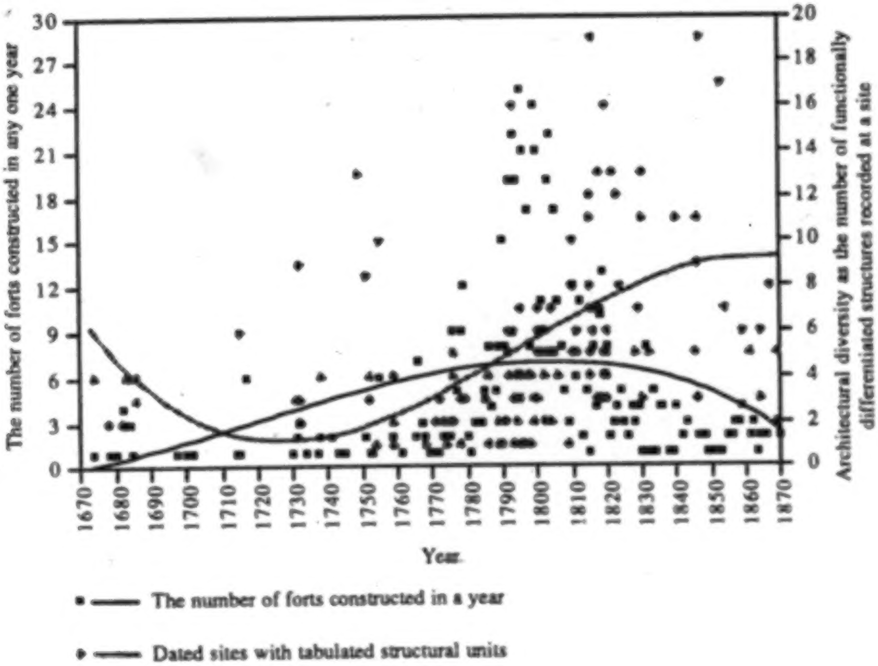


Figure 17. A model of the rate of fort construction laid over architectural diversity.

between 1775 and 1825, with a peak that occurred about 1800. At this time an average of seven forts per year were constructed with an architectural diversity of four to five structures. Among these were a stockade, possibly a house for the master/bourgeois and one for the *engagés*, and one or more industrially-related structures such as a blacksmith shop, or sometimes a provision store. There was some decline in the number of posts constructed between about 1805 and 1820, the period immediately prior to amalgamation. Architectural diversity, however, had now been augmented by the presence of a separate or attached kitchen to the master's house, and an additional structure in the industrial and provisioning categories. Finally, there was a more rapid decline in fort construction following 1821, but architectural diversity continued to increase under monopoly control until the Hudson's Bay Company transferred its territorial rights to Canada in 1870.

The model of the number of sites constructed through time does not correlate directly with the profile for changing architectural diversity; i.e., a change in one graph is not accompanied by a corresponding change in the other. Until about 1750, the increase in number of forts preceded the appearance of a trend to increasing architectural diversity. Once begun, however, the latter trend was generally independent of the rate of fort construction. The increased architectural diversity of sites after 1800 may have been a factor enabling the decrease of fort construction without loss of trading capability. By the date of amalgamation there was hardly any decline in the number of forts constructed per year, but the architectural diversity had doubled. The Hudson's Bay Company, having gained monopoly control, carried out several measures under George Simpson to reduce costs. Among the often mentioned initiatives were the retirement or dismissal of redundant employees, and a reduction in the number of operating posts. Together with these measures, it might be expected, there would be fewer new posts constructed and a status quo would prevail in regard to architectural diversity, but it did not. The rate of construction diminished slowly as even by 1850 the Hudson's Bay Company still constructed from two to three sites per year, but there was now an average of nine functionally different structures per site. Not until after 1870, when very few new posts were being constructed by the Hudson's Bay Company and after power in the Northwest had been transferred to Canada, did the architectural diversity of fur trade sites decline; and the decline continued until 1870, the cut-off date for this study.

Fort construction compared to architectural diversity may be separately delineated among the two major competitive groups. The comparative profiles of the rates of fort construction and architectural diversity for the North American-based companies and the Hudson's Bay Company are shown in Figure 18 (derived from data in Appendices 1, 3).

During the years leading up to the establishment of Cumberland House by the Hudson's Bay Company in 1774, the rate of construction for the North American-based companies increased from two to four sites per year, with a site average of about two architecturally distinct structures. A rate of increased construction correlated to the influx of Pedlars and competition among them during this period, but there was no change in the structural diversity of their sites. By 1800, about nine sites were constructed per year, with about four to five functionally distinct structures per site. Between 1765 and 1800, then, there appeared to be a trend toward both increased construction and increased architectural diversity. During this same interval, the North West Company extended its frontier to 2,400 miles from Fort William, and Hudson's Bay Company competition was well-distributed throughout the Plains-

Parkland region. Given that the North West Company was going to expand another 1,000 miles, that the Hudson's Bay Company was planning to launch a competitive effort in Athabasca, and that North West Company policy had been to provide almost overwhelming competition, it would not be anticipated that the North West Company's rate of fort construction would go into rapid decline. By 1815, however, the North West Company had reduced its rate of construction to about two sites per year, but there was a greater diversity of structures per site than in 1800. The tail end of this curve, between 1815 and 1820, is partly affected by a tabulation of 27 functionally distinct structures at Fort William in 1816. It is, therefore, not visible as a *y* axis entry but the curve still reflects the value of this statistical outlier. Discounting this influence, the architectural diversity of the North West Company between 1815 and 1820 was still seven and eight structures per site. Architectural diversity continued to increase, although the frequency of site construction declined rapidly. These data provide a graphic demonstration of variation through one-half century of competition. The beginning of divergence in the profiles about 1800 is interpreted as indicative that the years surrounding this date may be of critical interest.

It is observed that the curve trends are not the same for the Hudson's Bay Company as for the North American-based companies. The curves are based on more than 300 sites of the North American-based companies, 132 Hudson's Bay Company sites dated between 1774 and 1820, and another 40 sites post-dating this period. As a generalization for the Hudson's Bay Company, the number of forts built annually doubled between 1780 and 1800, and architectural diversity increased by 25 per cent, from three functionally distinct structures to four. During the last years of competition, 1818 to 1820 inclusive, relative to the North West Company, the rate of Hudson's Bay Company construction was greater, territorial expansion was being aggressively undertaken, and the architectural diversity of its forts was increasing.

Conclusions

The number of forts constructed per year by each company did not follow comparable paths. The change in rate from increase to decrease did not occur concurrently and, although it may have been expected that the profile of the number of posts constructed by the Hudson's Bay Company would decline after amalgamation, it was not anticipated that stabilization, or possibly even a decline, in the rate of construction would have been represented so much prior to 1821.

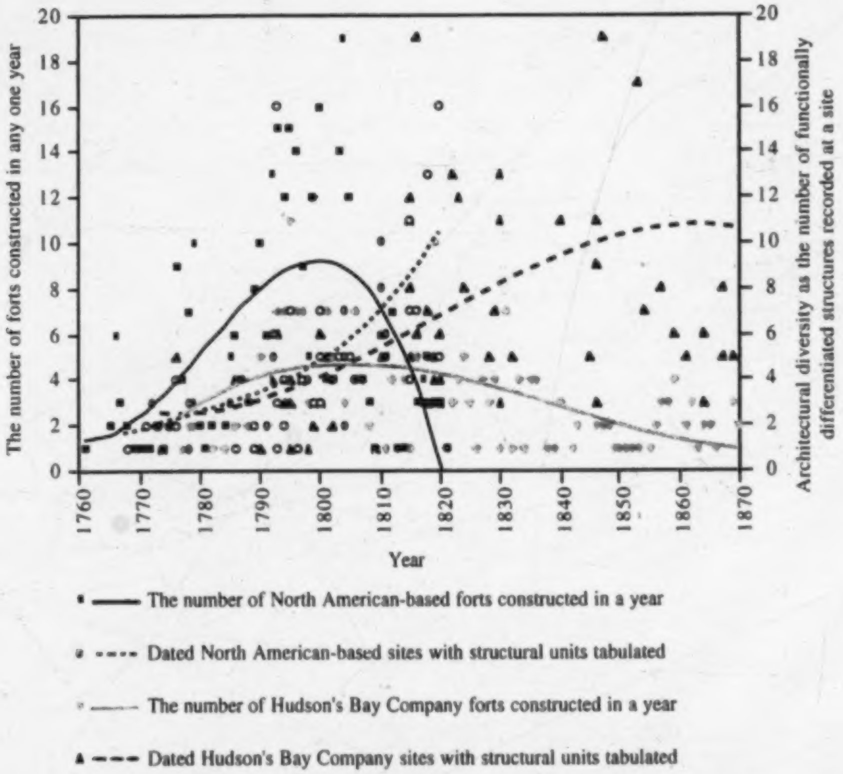


Figure 18. The profiles of fort construction laid over architectural diversity, North American-based and Hudson's Bay companies.

Pyszczyk (1992:37) was fundamentally correct in concluding that there was a temporal trend to fewer and more functionally diverse forts after 1821. This generalization, however, should be applied to a period that commenced almost 20 years earlier, and was true of both groups of companies. The populace of a fort required accommodation, defensive works, and distinct structures for specialized trades: saw-pit, blacksmith shop, cooperage, canoe and boat building sheds. Goods stores, trading areas, provision stores, fur presses and fur stores also came to be provided. Given that the data were derived from activities common to both North American-based companies and the Hudson's Bay Company, it might have been expected that the curves of each group would take a more similar form over a longer period of time; that they did not are characteristics of competitor-level components within the Fur Trade Architectural Diversity Model. By the time that a diversity of four structures per site/per company was reached, about 1795-1800, a trend in architectural diversity had become established that was insensitive to the number of forts subsequently built on an annual basis. The North West Company's precedent rate of increased architectural diversity, accelerated expansion, and a more intensive rate of fort construction fit well with our understanding that the Pedlars and North West Company provided aggressive competition, first among themselves and then to the Hudson's Bay Company. As competition and expansion continued unabated, and even intensified, after 1800, a threshold of architectural diversity was crossed that became tied to locations of longer-term occupancy and enabled less frequent construction.

When comparisons are made between companies on a complex of factors, the Hudson's Bay Company appeared more conservative than the North West Company until 1800, and more stable thereafter. Following amalgamation, a similar trend is observed in that increasing site diversification was accompanied by a slower rate of construction. Although a longer-term association was evident between territorial expansion and architectural diversity, a broader understanding of a relationship here should include the increasing rate of fort construction before 1800 as a possible contributing infrastructure factor.

Chapter 8

A MODEL OF FORT SIZE THROUGH TIME

Increasing architectural diversity, territorial expansion, and fort construction were accompanied by the development of a more sophisticated transportation and provisioning system. A transition from exclusively trading post functions within about a 1,500 mile radius of Grand Portage, for the North American-based companies, and York Factory, for the Hudson's Bay Company, grew to include freight forwarding, provision acquisition and storage, and regional administrative control. The identification of functional differences between many forts is frequently problematical in that shifts in importance could be gradual, and that some sites could serve multiple purposes concurrently. Fort Edmonton, established in 1795, for example, initially supplied furs of greater value than the provisions obtained, and as fur resources were depleted, provisions gradually became more important. Following amalgamation, its role as regional headquarters was elaborated upon, but furs always remained an article of trade. The obvious implication is that increased role complexity for a site should equate with increased architectural diversity, as this diversity is function-related. Terms referring to site roles occasionally shifted in meaning, and were applied unequally, functions sometimes overlapped, and transition from one state to another protracted. How does one gauge so many subjective values and measure them against a time scale? This problem may be circumvented by adoption of the assumption that as site role/functional/architectural diversity increased, there is also an overall increase in site size. Fort size, expressed as the square footage that a fort occupied, is a quantifiable variable. The proposition that fort roles and architectural diversity increase together with site size can thereby be delineated both for the total site sample and for each group of competitors.

Historical Outline and Interpretations of Fort Size

Most observers of the fur trade have recognized that many eighteenth-century fur trade sites were smaller relative to their late nineteenth-century counterparts. For example, Peter Pond's fort of 1778 on the Athabasca River was replaced by a succession of forts, the last Fort Chipewyan being the largest. Elsewhere, Fort Pelly II was larger than Fort Pelly I (Klimko 1983:42), and Fort Vancouver very much larger than the earlier Fort George/Astoria (Hussey 1970:257, 260). Exceptions, of course, occurred. In describing the Pedlars' site of Fort des Prairies (1776), Alexander Henry the elder wrote that

> the fort has an area of about an acre, which is enclosed by a good stockade, though formed only of poplar, or aspen-wood, such as the country affords. (Bain 1969:319, 320)

This was a subjective estimate that placed the size of this fort larger in comparison to a number of others, both of the same period and later. Among these sites are LeBlanc/Finlay's House (1773), Fort aux Trembles (1773), Hudson House (1779), Pine Island Fort (1786), and Pine Fort (1785). All measurements of site size are limited to the area enclosed by palisades, stockades, and plank fences.

The areas of stockaded site size have been used in a number of studies (Hamilton 1990, Pyszczyk 1992), and do not include garden areas exterior to the stockade walls. The calculation of site areas, here, derives both from the measurement of sites based on archaeological excavation, and historical references. A brief review of published and manuscript literature indicates a degree of inconsistency among authors. For Hudson House on the North Saskatchewan River, site sizes have been given as 6,400 square feet (Rich 1952:27n), 11,025 square feet (Clark 1969:33), and 12,100 square feet (Pyszczyk 1992:36). Buckingham House, 1792, was given fort areas of 10,000 square feet (Tomison cited in Nicks 1969:35), 15,200 square feet (Nicks 1969:37), and 17,835 square feet (Pyszczyk 1992:36). In some cases inconsistencies occurred within a single document. For the 1793 site of Brandon House, fort areas of 17,610 square feet and 14,208 square feet were given (Hamilton 1990:77, 103). Competing companies might be expected to have had differently sized posts, so the known size of one could not be used to infer the size of another nearby. Fort areas were affected by factors of manpower, transportation, and availability of goods. The North West Company site of Terre Blanche, for example, was larger than the adjacent White Earth House of the Hudson's Bay Company: Terre Blanche enclosed 44,200 square feet, White Earth House 27,040 square feet (Nicks 1969). On Lake Athabasca, similarly, the North West Company's Fort Chipewyan was larger than the nearby Hudson's Bay Company's Nottingham House. In time, Nottingham House was superseded in size by the later Hudson's Bay Company's Fort Wedderburn.

Modeling Chronological Changes in Site Size

Generalized modeling of changes to site size extends in temporal scale from French movement into the west to that of the Pedlars, North West Company and Hudson's Bay Company forts, and through the period of Hudson's Bay monopoly control until 1870. Relative statements on site size are not acceptable. Examples of these take the form that site A "is larger than" site B, or that site X is "small." Historical references are accepted as given if some reference was made to measurable concepts of size. Thus Henry's statement that the Fort de Prairie occupied an area of "about an acre" qualifies for acceptance.

Some sites consisted of one building or sometimes a small cluster of structures but without a definable perimeter. It might be possible to compare such sites through time on the basis of structural size, for example, floor area against the resident population. Many of these sites were small wintering posts, generally of one or a few seasons. Not all may have been trading posts; for example, an excavated site on Old Fort Point may have been a fishing station, but was yet a part of the fur trade (Karklins 1981). The cabins erected by Turnor and Ross near the same location were only for winter habitations related to an exploring expedition; nevertheless, a small quantity of furs was obtained there (Tyrrell 1934). A fuller examination of these small sites needs to be undertaken, but they have not been incorporated into the tabulations of site area because the immediate, associated yard areas lacked the definition provided by a stockade or fenced enclosure.

Differences in site size reported in the archaeological literature have been resolved by a recalculation of square footage based on reported dimensions and site plans. When there was a difference between the recorded sizes of fort areas, recalculation from a plan was preferred, even when the difference appeared minor compared to that in a text. If a recalculation of site area based on plans or text dimensions has not been possible because information is lacking, then the reporting archaeologist's figure was used. The site areas were next correlated to the year in which the site was constructed, or to subsequent rebuilding phases. The basis for this correlation was primarily historical information and, secondly, the interpretations of reporting archaeologists. Site areas were then plotted against a chronological scale for the delineation of a diachronic model for site sizes as whole, and group-specific profiles for the North American-based companies, and for the Hudson's Bay Company.

A curved line, or graph, fitted to the data is used to make comparative observations among models and between profiles that have already been revealed. The fort area studies of Hamilton (1990:77) and Pyszczyk (1992:36) were based on sample sizes of 15 and 16 sites respectively, and more than 100 site areas are used in this study. The generalized model of changing site size through time is presented as Figure 19 (derived from data in Appendix 4).

This model represents a general collection of fort sizes to which a curve has been fitted. At this level of observation, fort areas demonstrated a wide range of variation which indicates that sites became larger through time. A trend towards increasing fort size commenced about 1760, and accelerated quickly thereafter. The indicated trend is in agreement with archaeological and historical perceptions that fort size became progressively larger. The generalized visual model, however, graphically indicates the rate of change that took place.

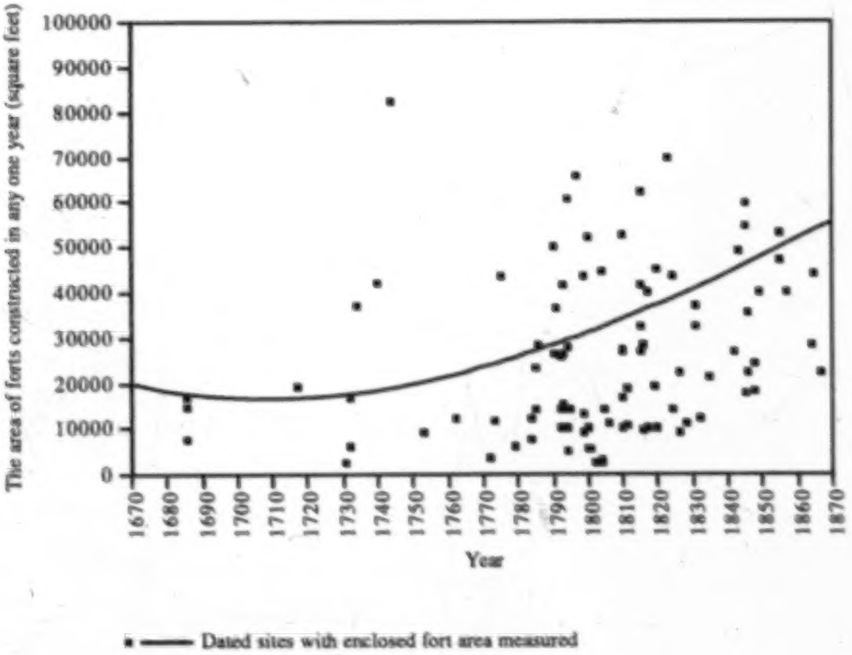


Figure 19. The model of changing fort size.

The fur trade forts of the late seventeenth to mid-eighteenth centuries had a smaller range of variation in enclosed size than later sites. Large forts included

Michilimackinac, Grand Portage, Fort Ouiatenon, and Fort de Prairie; of which the first two were large distribution centres. Fort Ouiatenon and Fort de Prairie would be categorized as local distribution centres. The small sample size and great range of variation clearly indicates how a fitted curve might have few data points specifically on the profile. By 1780, the range of variation began to skew towards larger sized forts, and the overall trend indicates that the average site size constructed around this date was about 25,000 square feet. Site size continued to increase at an accelerated rate after this date. The model showed that subsequent to 1820, the Hudson's Bay Company continued the trend of enlarging sites. A possible curve-skewed effect is probably the result of early Bay-side posts, and later, large depots around Hudson Bay, including Albany, Rupert, York, the Pacific slope forts of Vancouver, Langley, and Victoria, and the inland depots of Norway House and Fort Chipewyan. In further analysis of this curve's components and the search for explanation, this model is next compared to those previously recognized.

Fort Size and Inland Expansion

The overall size of fort compounds is examined relative to the rate of territorial expansion because there is an implied linkage that greater logistical support would require larger yards. Among the factors affecting a possible increase in fort size would be the need to accommodate additional manpower, provisions, and goods. The development of inland depots such as the North West Company sites of Lac la Pluie, Bas de la Rivière, Ile à la Crosse and Fort Chipewyan were met by the Hudson's Bay Company portage forts and depots of Cumberland House, Fort Wedderburn, and Fort Douglas. As expansion extended into the upper Peace River and Mackenzie River districts, larger quantities of provisions were required from the pemmican stores of the Plains. Taken together, there is an expectation that forts increased in size as territorial expansion occurred. The relationship between the two, however, has to be delineated. In order to examine this question, relevant site data are tabulated and curves fitted that may then be compared and observations noted. The generalized models of enclosed fort size and inland expansion are presented in Figure 20 (derived from data in Appendix 4).

Figure 20 uses data from a variety of sources, including those that pertained to the different fur trade experiences of the French, later North American-based companies, and the Hudson's Bay Company. As such, it is a mathematical construct that is useful only for generalizing about the fur trade as a whole. The chronological model for a general increase in fort size roughly corresponded to an enlarging frontier. During the early years of inland expansion, including French movement into *la mer de l'ouest*, and the Pedlars activities until about 1775, sites of about 20,000 square feet were the average, and the forts were apparently getting larger. At the same time, the fur trade frontier had been pushed to a distance about 1,200 miles inland from Kaministiquia/Grand Portage. By 1775 the Hudson's Bay Company was in its second year inland, but the Pedlars were established higher on the Saskatchewan River, were already on the Red and Assiniboine Rivers, and were expanding towards the English River district. By 1800, sites reached an overall average of about 30,000 square feet, and the trade frontier was about 2,000 miles inland. At amalgamation in 1821, fort areas had increased to an average of 35,000 square feet, and the frontier was about 2,800 miles inland. The northwestern limits of Hudson's Bay Company

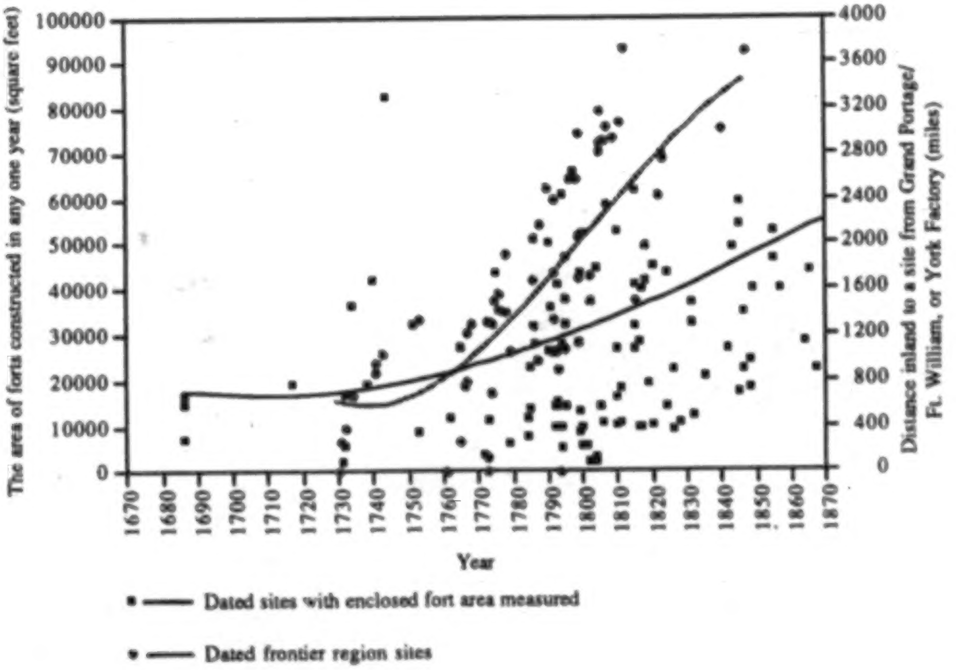


Figure 20. A chronological model of fort size laid over the model of inland expansion.

expansion were reached at Fort Yukon in 1847, almost 3,700 miles from York Factory, and continued to increase slowly. These figures were derived from a pooling of data and simply generalize the development of fort size relative to territorial expansion. In order to enable more detailed observations, the profiles of fort sizes and territorial expansion must be portrayed for each of the major competitors. A paired data set and profiles of North American-based site areas and expansion are plotted against those of the Hudson's Bay Company in Figure 21 (derived from data in Appendices 2, 4).

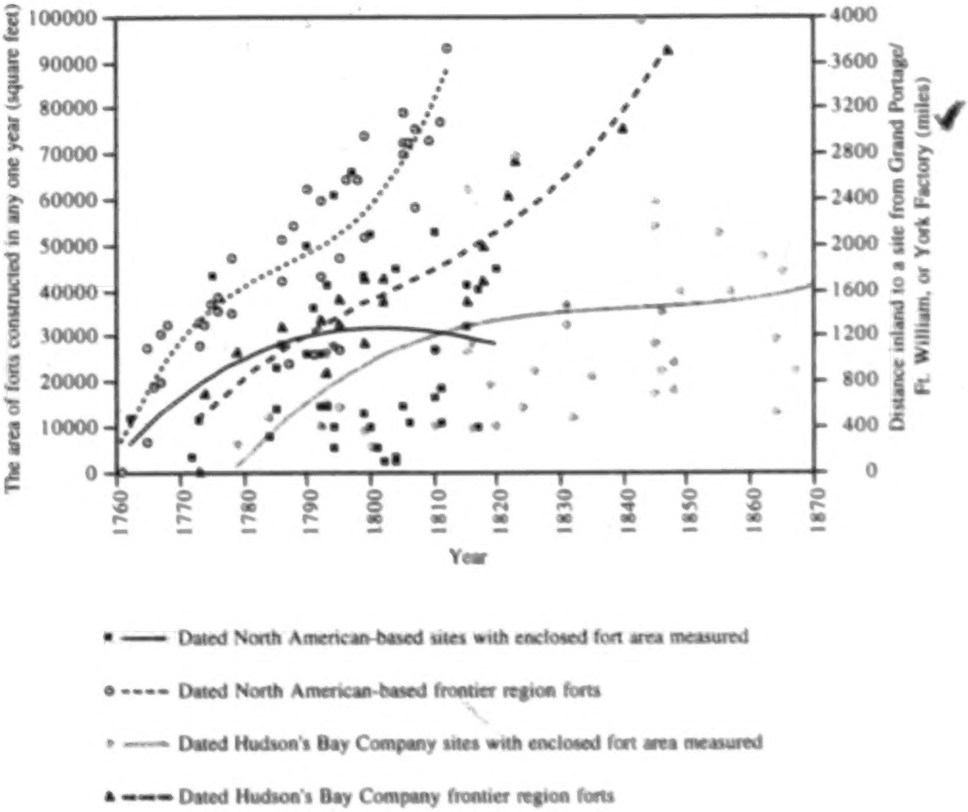


Figure 21. The profiles of fort size laid over expansion, North American-based and Hudson's Bay companies.

In Figure 21, the focus is on inland competition between the North American-based companies and the Hudson's Bay Company, 1760 to 1820. The Pedlars/North West Company fort areas increased to over 30,000 square feet as a succession of posts was constructed ever farther inland until these traders were about 2,000 miles from Grand Portage, or one-third farther inland over the previous 25 years. By 1795-1800, forts had approximately doubled in size over those built 30 years earlier. Points of geographic reference for the extent of territory encompassed about 1795 include the upper Red Deer River and Assiniboine River districts, the North Saskatchewan River to Fort George, the Peace River district almost to its junction with the Smoky River, and to the upper Mackenzie River. Forts began to stabilize in square footage about 1800, and this trend continued, or declined slightly, until amalgamation

Hudson's Bay Company fort areas increased rapidly from their first establishment at Cumberland House in 1774 until the construction of Fort Wedderburn in 1815. After 1820, Hudson's Bay Company forts increased in size at a slower rate. By amalgamation, fort areas began to average over 30,000 square feet and territorial ambition extended 2,000 miles from York Factory. The attainment of monopoly control by amalgamation in 1821 corresponds to a stabilization in overall fort sizes. This development was possibly the result of Simpson's endeavour to reduce expenses, but a similar trend was evident for the North West Company at an earlier date, at distances beyond 2,000 miles from its Fort William depot. Some of the forts retained after amalgamation, of course, included a number of North West Company forts that contributed to the delineation of this curve. A long-term, gradual increase in the size of enclosed fort areas continued through the third quarter of the century, when the fort average rose to about 40,000 square feet, almost a decade after the maximum territorial expansion to Fort Yukon.

On another scale, there were still other observable similarities and differences in the profiles of the North American-based group and the Hudson's Bay Company. At respective distances to 1,200 miles inland from Grand Portage and Hudson Bay, fort sizes of the two groups were still small, but comparable at about 15,000 square feet each. At 1,600 miles inland the North American-based competitors averaged site sizes a little over 20,000 square feet, but the Hudson's Bay Company forts, at a comparable distance, were about 5,000 square feet larger. By 1800, the ratio of North West Company site size relative to their rate of expansion was stabilizing, but that of the Hudson's Bay Company was still increasing. The ratios between site size and frontier extension, then, show that the Hudson's Bay Company gained relative to the North American-based companies. The disproportionate ratios may indicate that a complex logistical relationship existed between site size, distance, time, and competition. Given that the Hudson's Bay Company eventually became the successful competitor, the earlier, larger sites of the North West Company had little to do with economically efficient, competitive expansion, especially after 1800.

Fort Size and the Rate of Fort Construction

One presumption about a relationship between changing fort size and the rate of fort construction might be that an inverse relationship exists between the profile of increasing fort size and the rate of fort construction. This relationship could be a result of larger and more diverse forts replacing the need for smaller and more widely distributed sites, with the effect of a reduction in total construction rate. On the other hand, a positive covariation might be expected as an outcome of larger forts being able to support an augmented network of lesser posts and outposts. These diverse views can only be investigated by charting the respective profiles for each group of data and observing their similarity (Figure 22, derived from data in Appendices 3, 4).

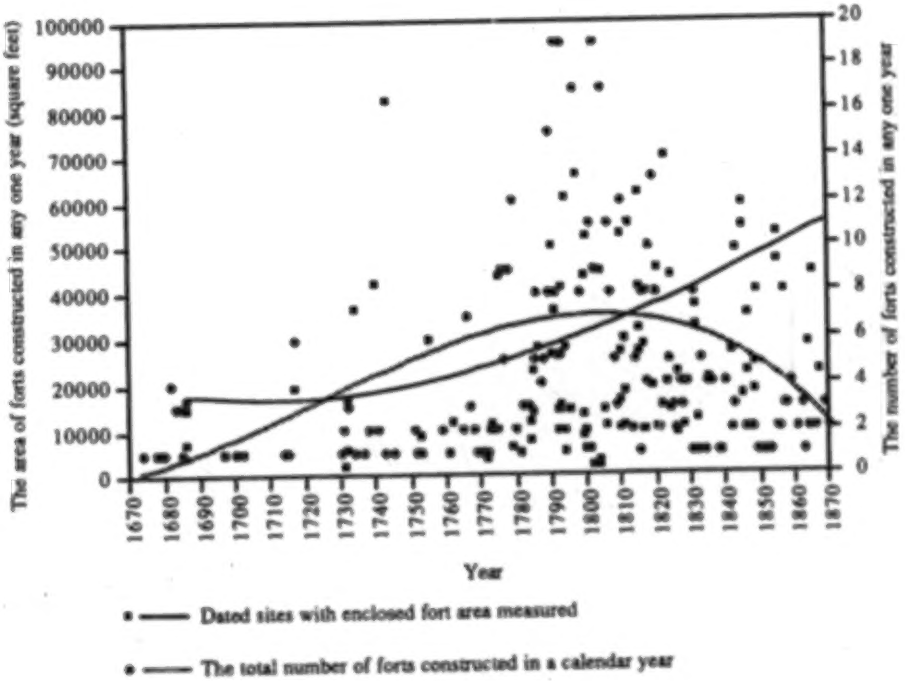


Figure 22. A chronological model of fort size laid over the rate of fort construction.

Figure 22 is a graph based on including site information without discrimination between competitors, the location of sites, or their functional purpose. Observations made here are applicable to the whole fur trade at a general level. There was an increase in fort sizes and an increase in the rate of construction until about 1810, but there was little concurrence between these rates. Through the last quarter of the seventeenth century and the first quarter of the eighteenth century, the average size of forts was less than 20,000 square feet, and approximately one to four sites per year were constructed. By 1800, the average size of forts had increased about fifty per cent and the construction rate had doubled. The two profiles diverged after 1800, with forts becoming gradually larger while the rate of construction dropped. This trend continued through amalgamation and lasted into the latter half of the nineteenth century.

The observation made from these profiles is that, beginning with the French movement into the west, increasingly larger numbers of forts were constructed, but the size of forts did not increase much until the North American-based ventures began to compete in the Northwest. Over the entire span of time, there was no continual, positive covariation between increasing site size and the rate of fort construction. From the commencement of the French competitive push into *la mer de l'ouest* until the Hudson Bay Company's defeat of its rivals, about 1730 to 1800, rates of increase were seen in both site size and construction. At this latter date, with an overall fort average above 30,000 square feet, size may have been an infrastructure factor that enabled fewer sites to be constructed and yet meet the requirements of an effective fur trade. In order to more particularly examine the relationship between fort sizes and the rate at which sites were constructed, company-specific profiles are charted and compared in Figure 23 (derived from Appendices 3, 4).

The profile of North American-based companies suggests that fort sizes and building activity increased together until about 1800. At this date, North West Company fort sizes attained an average of almost 35,000 square feet, and there were about nine sites per year erected. Within the 20 year interval from 1780 to 1800, the fort areas of North American-based companies increased by an average of 140 per cent, and the rate of construction by 180 per cent. After this date, the area of North West Company forts no longer continued to increase, and the number of sites built per year dropped quickly. About the time of amalgamation, fort sizes may even have declined, and fort construction had almost terminated. Taken together, the years immediately surrounding 1800 marked a turning point in the relationship of these two North West Company architectural variables.

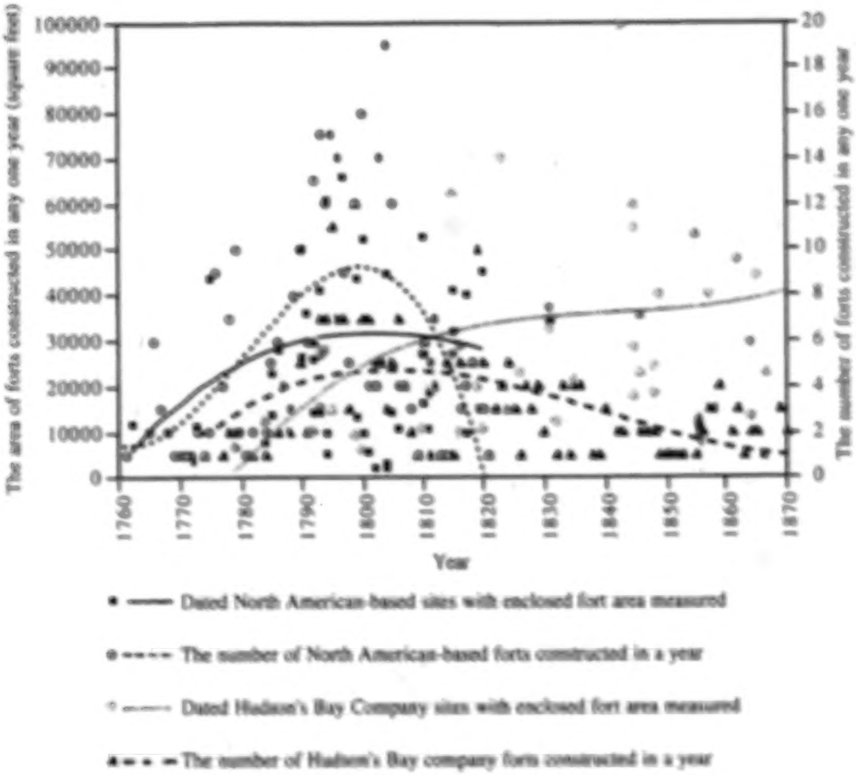


Figure 23. The profiles of fort size laid over fort construction, North American-based and Hudson's Bay companies.

Until 1792 the Hudson's Bay Company could still build sites as small as 10,000 square feet, as at Buckingham House, but by 1800 its average site size rose to about 25,000 square feet and almost five sites per year were being built. The observation here is that the Hudson's Bay Company increased its site sizes at a rate greater than its competitor, maintained a lower rate of construction, and, at any common point in time, had a smaller average fort size. Later, under monopoly control, the company continued to increase site size more gradually as construction numbers fell.

A long period of building larger and more sites did not confer a competitive advantage to the North West Company. After 1800, the Hudson's Bay Company was clearly operating at a more competitive, sustainable rate. George Simpson's rationalization of the fur trade after amalgamation is well known to have resulted in forts being closed and fewer new ones built, but it is little known that the average size of posts exceeded those of the preceding competitive period. In summary, the diverse characteristics point to a period of time *c.* 1800, and possibly earlier, as worthy of more detailed examination in regard to successful competitive ability.

Fort Size and Architectural Diversity

Architectural diversity was defined in an earlier chapter as a pattern of architectural variation that changed and increased through time. As more functionally specific structures were constructed, it is logical that the overall size of forts also became larger. It is not yet known, however, if the rates for each can be correlated in a regular order. The data for each of these variables are accordingly tabulated and curves are fitted to provide a graphic comparison of the two rates. The generalized models for the enclosed areas of forts and architectural diversity are compared in Figure 24 (derived from Appendices 1, 4).

Chronological changes in fort size appeared to have a relationship to changes in architectural diversity over much of the time range, as proposed. The models provide a delineation, not otherwise available, of that relationship. As elsewhere in this text, the central period of the time frame is studied more intently because it is one of acknowledged competition and the data from this period were more numerous than that at the temporal extremes. During the latter part of the seventeenth century and the first half of the eighteenth century, site sizes remained fairly stable at an average about 20,000 square feet. Charted architectural diversity declined during this period as a reflection of increasing numbers of small French sites built at the edges of their frontier. Following Conquest, there is an increase in both factors through 1850. As late as 1870, site sizes continued to increase but the number of diverse structures stabilized. This commentary relates to a generalized data pool of fort sizes and architectural diversity. A generalization of data that is actually a composite of different groups and competitors oversimplifies a complex subject. It is instructive to examine information of the separate endeavours of the North American-based ventures and the Hudson's Bay Company in Figure 25 (derived from data in Appendices 1, 4).

A rate of changing fort size for the Pedlars and North West Company bore a variable relationship to their profile of architectural diversity. In 1775, fort sizes averaged about 20,000 square feet and there were an average of two architectural units per site, for a ratio of about 10,000 square feet to each unit. In 1790 the figures

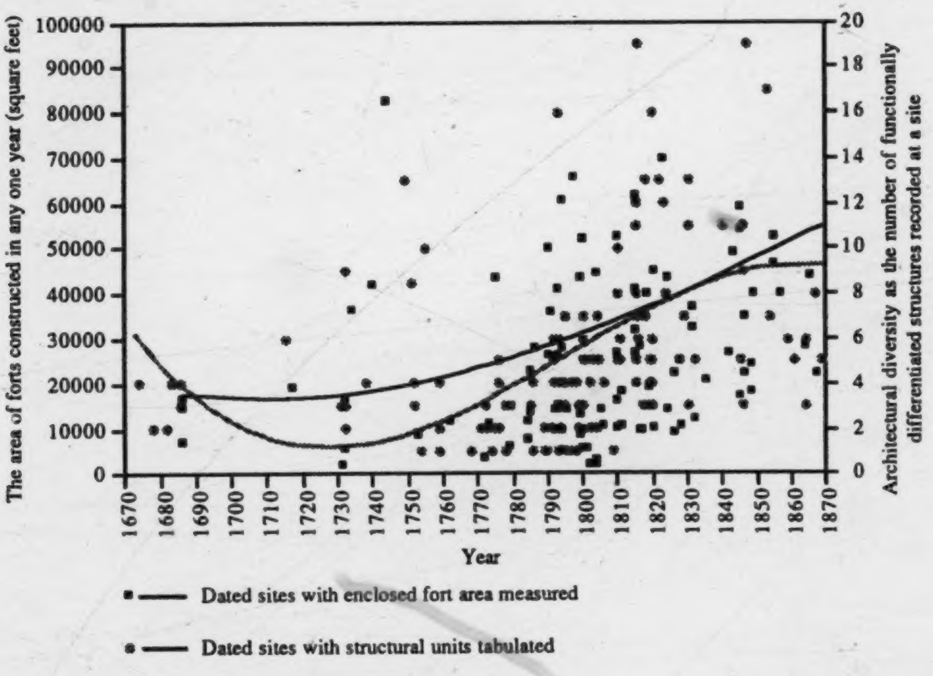


Figure 24. A chronological model of fort size laid over a model of architectural diversity.

were almost 30,000 square feet to four units (7,500:1); in 1800 the average was about 32,500 square feet to five units (6,500:1); in 1810 forts averaged 30,000 square feet to seven units (4,300:1); and by 1820 fort sizes had stabilized, or declined, but the number of different structures increased to ten (2,800:1). Given that these values are not absolute because of the incomplete data base, the figures, nevertheless, show a trend in that the average area per structural unit declined at North West Company forts through time.

In 1790 the Hudson's Bay Company was constructing sites of about 15,000 square feet, on average, and with a diversity of three distinct architectural units, for a ratio of 5,000 square feet per diverse structure. By 1800 this ratio increased to 24,000 square feet and four structural units (6,000:1); by 1810 it had forts of 30,000 square feet to six structures (5,000:1) and, finally, in 1820, slightly larger forts of perhaps an average of 35,000 square feet to seven structural units (again 5,000:1). The trend during the competitive period was for the North West Company to constantly reduce the size of fort enclosures relative to the number of its structures. The Hudson's Bay

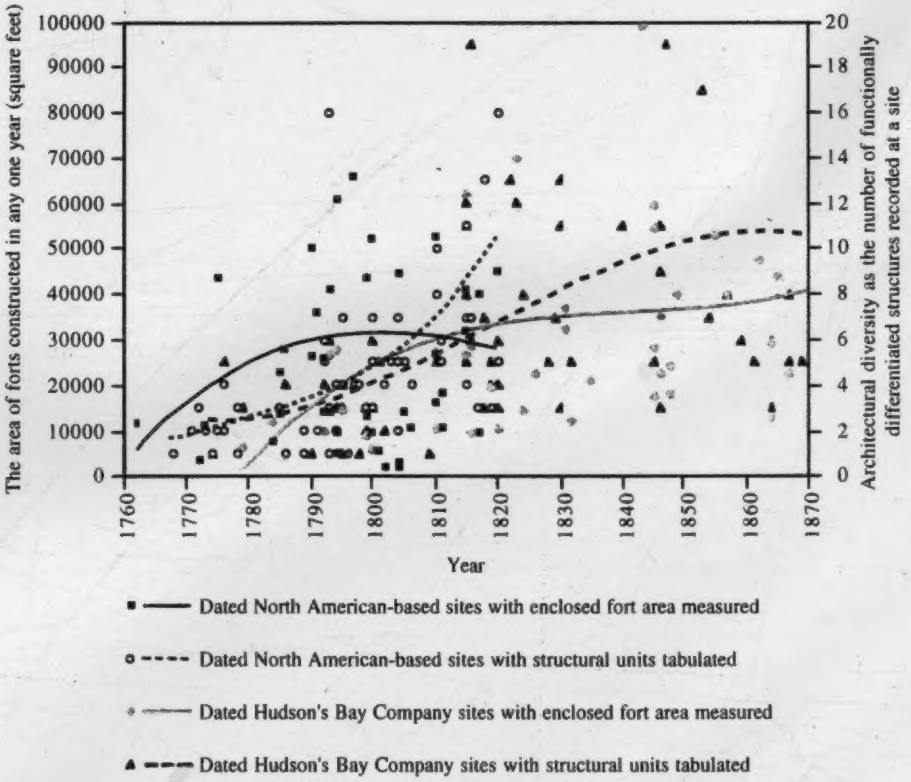


Figure 25. The profiles of fort size laid over architectural diversity, North American-based and Hudson's Bay companies.

Company, on the other hand, maintained fairly constant fort areas relative to its component structures although, towards amalgamation, it too became more compact. Through much of the subsequent monopoly period, the Hudson's Bay Company's ratio of fort area to diversity continued to decline until 1860, by which time the average size of fort enclosures was 38,000 square feet and there was an average of eleven functionally differentiated structures per site, for a ratio of 3,454:1.

Conclusions

A general relationship existed between the overall models of fort size and architectural diversity in that an increase in one was accompanied by an increase in the other. Changes in these variables, at the level of competitors' profiles, were disproportionate. The North American-based companies had advantages over the

Hudson's Bay Company in greater architectural diversity after 1795, a more distant and extensive frontier, a larger number of forts built annually until 1815, and larger fort sizes. The fact that the North West Company was driven to amalgamation in 1821 is indicative that these variables, as simply given, did not accord with any real competitive advantage. Observable changes in the direction and continuity of architecturally related profiles for both the North West Company and Hudson's Bay Company, as each sought economic advantage, seemed indicative that the period prior to 1810 was critical to ultimate competitive success. Following amalgamation, the Hudson's Bay Company furthered expansion and structured its domain with sites that increased in both size and diversity, although the ratio of enclosed area to architectural diversity became more compact; and this situation lasted until at least 1860.

Chapter 9

A MODEL OF VARIATION IN SITE POPULATION

The size of fort populations is relevant to the study of architectural diversity. In the early fur trade, the small range of variation in architectural diversity is presumably correlated to the notion that each individual had to provide a variety of functions including transportation labour, subsistence acquisition and preparation, construction and maintenance labour, fuel gathering and other services; i.e., the integration and overlapping tasks of each person may not have been expressed in architectural diversity. When specialization of labour became more important, architectural differentiation is also assumed to have become necessary. None of the canoemen, for example, were expected to supply in addition the abilities of clerk-recorder, blacksmith, and cooper. The differentiation of skilled personnel into guides, interpreters, blacksmith, cooper, boat builder, etc., became supplementary to that of the labouring population generally classed as ***engagés***. This differentiation then required a larger fort population and additional structures for accommodation and specialized activities. It is also assumed that during the competitive period larger site populations represented an advantage through local domination of competing traders. The implication of the foregoing assumptions, as well as the delineated increases in architectural diversity, territorial expansion, site construction, and site size, is that site population may have generally become larger, and this question requires definition relative to the spectrum of models and profiles already presented.

Historical Outline and Interpretations of Social Relations and Population in the Fur Trade

As described by Eccles (1983) the upper class of colonial French society had little direct involvement with the fur trade, although they were charged with the responsibility of its regulation. The middle class was comprised of business men, civil servants, clergy, and military officers, some of whom participated in the direct administration of fur trade affairs and frontier society, and frequently voyaged inland and resided at forts. Those of the upper middle class tended to winter at the more prominent locations of Detroit, Michilimackinac and Kaministiquia. The lowest, and largest tier of society was the workers and peasants. This class of people provided the labour contracted as ***engagés*** to the fur trade. Frontier society, then, consisted of a large number of ***engagés*** and a few representatives of the lower middle class:

traders, clerks, and minor officers. Social distinctions between these two classes were diminished by the widespread adoption of Indian customs and values including subsistence foods (such as corn, squash, and pumpkins), transportation methods, dress and recreation (Eccles 1983:89). In one example, Peter Kalm, writing in New France in 1749, stated that,

> the French in Canada in many respects follow the customs of the Indians, with whom they have constant relations. They use the tobacco pipes, shoes, garters, and girdles of the Indians. They follow the Indian way of waging war exactly; they mix the same things with tobacco; they make use of the Indian bark boats row them in the Indian way; they wrap a square piece of cloth round their feet, instead of stockings, and have adopted many other Indian fashions. (Benson 1964:511)

Kalm wrote his description based on observations in the St. Lawrence River valley. It may be assumed that a similar situation applied to the fur trade frontier, possibly to an even greater degree. These behavioural and formal characteristics do not strongly support a view of considerable and functionally-specific architectural diversity at frontier forts. At Fort à La Corne, on the North Saskatchewan River, there was no clear reference made to separate living quarters for the Master, who lived in a room in which the trading goods were stored. The other two rooms in the house were for the men, and the furs (HBCA E.2/11). The total complement of this post included the Master and nine *engagés*. On his way inland, Anthony Henday was invited to enter the house by the summer men with a "great deal of Bowing and Scraping," in spite of their lack of food and drink (Morton 1939:245). He was similarly hosted on his return journey, but then made comment on their relatively poor material condition. Except for the Master, who was "dressed very Genteel,...the men wear nothing but thin drawers, & striped cotton shirts ruffled at the hands and breast" (HBCA E.2/11). Even the Master desired that Henday send back "...a piece of Brazile tobacco, & a quart or pint, japanned drinking mug" (HBCA E.2/11).

In terms of social relations between the traders and the Indians, Henday wrote, "It is surprizing to observe what an influence the French have over the Natives" (E.2/11). Morton (1973:253) discounted the earlier French reputation as "masters" in dealing with the Indians by reference to the burning of several French posts over the years; however, the burning of French forts may be seen not so much as an act of local hostility to the French as the result of tactical moves by one Indian group to affect the social relations of another. It is generally anticipated, however, that social relations established by the French would carry over to the Pedlars, particularly those of the French who had previously been in the west. Cocking, for example, commented upon the generally good relations between François LeBlanc and the Indians at his establishment on the Saskatchewan River, as "...they keep no watch in the night; even when the Natives are lying on their plantation" (Burpee 1908b:118). He was additionally struck, in approaching Basquia, by the extent of the amicable relations between the Montreal traders and the Indians and wrote, "It surprises me to perceive what a warm side the Natives hath to the French Canadians" (Burpee 1908b:119). Good interpersonal relations were supplemented by enclosed sites and increasingly large complements of men. In 1773, Finlay's post was described by Cocking as about twenty yards square (3,600 square feet) and occupied by a complement of 22 men (Morton 1939:285-86; Kehoe 1978:5).

The presence of large numbers of men at a site was sometimes a reflection of two or more competitors sharing a common location and stockade. Alexander Henry the elder wrote of four different interests competing for the trade of the Saskatchewan, but who had pooled their resources. In the winter of 1775 he visited and described one of the Fort des Prairies as having an "area of about an acre" and a complement of 50 to 80 men for its defense (Bain 1969:320). Here the size of the resident population was smaller in relation to area compared with the earlier Finlay's fort. The partnership of Pedlars to form the North West Company did not everywhere result in a reduction of the number of men per fort or a reduction in site size. At the North West Company's site of Fort George, in 1794, the site area of 60,000 to 65,000 square feet was associated with a complement of 80 men according to Duncan McGillivray (Morton 1929:41). William Tomison, their Hudson's Bay Company neighbour, estimated that Fort George was staffed by 50 to 110 men (HBCA B.24/a/2; Babcock n.d.:85). At the 1810 site of the much smaller Edmonton House III, with an area of 27,000 square feet (Nicks 1969:80), there were approximately 85 men out of a total of 166 inhabitants (Coues 1897:II:603; Nicks 1969:80, citing HBCA B.60/a/9). The inference drawn from these examples is that changes in the size of resident fort populations cannot be adequately examined through textual description, and that the complexity of information is best tabulated graphically.

During the 1770s there were indications of changes in the social relations between the traders and their *engagés*. It became apparent, for example, that the *engagés* became more frequently lodged in structures separate from the officers. When Cocking wrote about Blondeau's Red Deer River post, he noted that there was "No communication [i.e., doorways] within between the Divisions, which seems odd" (Tyrrell 1934:33). As Cocking had been inside many fur trade establishments by that date, the note may be a sign of an architectural development at odds not only with Hudson's Bay Company practice but also with an earlier period in the Canadian fur trade.

Social segregation as a characteristic of the North West Company is emphasized in modern literature, although its development has been incompletely described in relation to architectural diversity. Class distinctions between the officer and labourer groups have been considered to mirror "the social reality of 19th century Lower Canada as much as...a function of the organization of the company" (Hamilton 1990:28). An example of an exception to this picture is available in Cocking's 1773 description of François LeBlanc as "an old ignorant Frenchman: I do not think that he keeps a proper distance from his men; they coming into his apartment & talking with him as one of themselves" (Burpee 1908b:118). Perhaps less than an exception, this relationship may be one indicative of a cultural holdover from the earlier French fur trade. This cultural tradition was marked by the post merchant as a "commercial patriarch...[who]had his clerks, canoe men, and retainers of all kinds, who lived with him on terms of perfect sociability, always calling him by his Christian name" (Todd 1964:7,8).

Social segregation, then, might be tied to still other social and economic changes. In the post-conquest period, the ascendancy and domination of Montreal fur trade commerce by immigrant Scots, English, and American merchants may have precipitated the superimposition of an upper class onto an enterprise previously carried out by the French middle and lower classes. The imposition of this managerial class altered a cultural tradition from that of the displaced colonial officials, businessmen, clergy, and military officers. This upper class, moreover, participated directly in the inland ventures, formed partnerships and companies, and organized the Montreal aspects of the trade in a different manner.

In the early years following the Conquest, a changed political order and competition involving both old and new merchants led to commercial activity that was not the same as before. As partnerships and companies began to form among the Pedlars, the developing social hierarchy became more organized and broadly-based. Entry into the social structure became more difficult and was regulated by apprenticeship, seniority, and acceptance by the fur trade partners. This situation typified the later North West Company. Thus, the development of social segregation as an aspect of fur trade hierarchy may have been due both to traditional aspects of French colonial society and to post-conquest political, cultural and economic factors.

In one view, the organizational fabric of the Hudson's Bay Company has been perceived to have accommodated an informal tradition of upward mobility that "was rooted in the ethos of the mediaeval British manor house" (Hamilton 1990:27,43), which conferred upon it an early competitive advantage. Elsewhere, one of the hindrances of the Hudson's Bay Company in competing effectively with the North West Company has been assigned to its organization, as only "geographic advantages enabled the Company to survive" until reorganization could be effected (Innis 1970:158). Innis (1970:206) emphasized that the effectiveness of the shorter transportation route aided expansion and was responsible for pronounced effects on the technique and organization of the trade. As demonstrated in Chapter 5, however, Hudson's Bay Company expansion actually slowed about 1790, but there has been no recognition in the literature that this decline may have been associated with a lack of technological development and administrative stagnation. Historical events, however, point in this direction. Salient policy changes included a shift to the use of boats, a dilution of the subordination of trade directives from London, and a change to a share of the profits system. Innis (1970:164) claimed that with this reorganization competition after 1810 became more effective and, as has been shown here, was accompanied by more successful expansionist efforts. The North West Company, however, may already have been in decline by this date, so Hudson's Bay Company success in competition may have been the result less of policy changes after 1810 than long term effects of a combination of factors, one of which may be the size of the fur trade population, expressed per fort.

Site population, as a general aspect of fur trade conduct, can be examined without first having to weigh the relative merits of arguments regarding the motivating factors of internal social relations. First, the data might be organized into tabulations of site populations, and compared to generalizations regarding the extent of the frontier, numbers of forts constructed, square footage of site areas, and the diversity of architectural categories. Analysis of chronological models based on these variables might reveal patterns that can provide direction to the search for explanation of architectural diversity. A simple list of populations at sites, and other variables does not easily convey an impression of patterned change, and so recourse is taken to the modeling technique used in previous chapters.

Modeling Trends in Site Population

The total manpower employed by each trader or company could indicate relative costs to establish a viable, if not dominant, presence inland. Comprehensive census figures over a long time span do not exist for the North West Company and smaller Montreal based companies. A report by Roderick Mackenzie to Lt. Governor Milnes in 1802 suggested in one tabulation that 741 men were engaged in the fur trade northwest of Grand Portage, but elsewhere in the same report he used the figure of 887 (Davidson 1918:280, 281). There is no way of determining which number was more accurate. A difference of 17 per cent is enough for skepticism at this level of analysis when so few other census figures are available. As an alternative to total census figures, I propose to use the number of partners, clerks, ***engagés***, or other salaried or wage employees employed on an annual or full-time basis, per post, as a means of modeling site population. The portion of the populace that included women, children, freemen, and any other groups or individuals employed on a part-time or seasonal basis is not included. As the populace engaged was almost all male, tabulation of this site population component is expressed as the number of employees, or number of men per fort. The numbers of employees per fort is considered to have had the potential to affect fort architecture. The more employees at a fort, the larger its size to provide commensurate accommodation and services for men and their families.

There are some problems with tabulating the numbers of fur trade employees at each site. In 1810 Alexander Henry (Coues 1897:603) suggested that 85 people were present at the Hudson's Bay Company's fort of White Earth House (also known as Fort Edmonton III), whereas Nicks (1969:80), gave a population figure of 166. Both figures included the number of men, women, and children. At this site the North West Company shared a common stockade with the Hudson's Bay Company, with a partition between the two compounds. The North West Company's site, known as Terre Blanche, was the larger of the two. Terre Blanche enclosed 44,200 square feet, and White Earth House 27,040 square feet (Nicks 1969); thus, White Earth House was about 61 per cent as large as its neighbour. Alexander Henry counted 135 people at Terre Blanche. Proportional to site size, a population figure for the Hudson's Bay Company would give 135 x 0.61=82 people. This figure is closer to Henry's than

Tomison's, and although the lower figure could be used as the size of the fort complement at White Earth House, the actual number of employees was probably still less. As the proportion of employees to total population at Terre Blanche was 22 per cent, a similar percentage of 135 at White Earth would indicate 19 employees. The Hudson's Bay Company men did not inter-marry as frequently, however, so the number of employees may have been double this figure. The resulting figure of 30 to 40 employees would be more in agreement with the site populations known for the earlier Buckingham House and Edmonton House. The correlation of this calculation to the number of employees based on the results of one example, however, is too conjectural for general application.

The number of part-time servants is not included in this study. There was a trend through time towards hiring part-time employees in lieu of engagements for a year or longer. The figures used for this part of the study are therefore not an indicator of absolute populations at each site and may not be totaled to arrive at a census figure for a district or group of sites. The number of officers and contracted male employees per site, for which at least one record is available, is used to express a demographic variable for the purposes of fitting of a curved line to enable observations of a temporal order.

The number of employees at sites is derived from a haphazard sample of historic documentation sufficiently large to provide a basis for observation and interpretation. Even if good figures are lacking, the lists of men's names on post and wage rosters are sometimes used for determining the number of men (population) per site. This number includes both salaried officers and full-time wage or contract employees. The number of men per site is not everywhere known, but some constraint has been provided by population figures for fur trade districts as a whole. In a study of the Little North country, between Lake Winnipeg and Hudson Bay, and south of the Hayes River, Lytwyn recorded (1986:114) that in 1805-1806 the North West Company had twenty posts and 186 men, and that the Hudson's Bay Company had nine posts and 57 men. Lytwyn observed that the Nor' Westers outnumbered the Hudson's Bay men by more than three to one, but this difference, however, can also be expressed in another manner. The North West Company had about 10 men per site, and the Hudson's Bay Company six men per site. This type of ratio, the number of men per site, is a simplification more useful for comparison in this thesis.

Following the practice established in earlier chapters, graphs with fitted curves are compared one to another. The application of statistical means reconciles the range of variation encountered and renders the information into third order polynomial curves for observational analysis. The data base sample is from readily available manuscript and archival sources. The chronological model of site population is compared to the models of expansion, fort construction, fort size, and architectural diversity, each in turn. Comparisons are also made at the level of company profiles for each category.

A composite plot of fort population is attained by graphing data from 250 North American-based company and Hudson's Bay Company forts. Expressed through time, a generalized model is presented as Figure 26 (from data in Appendix 5).

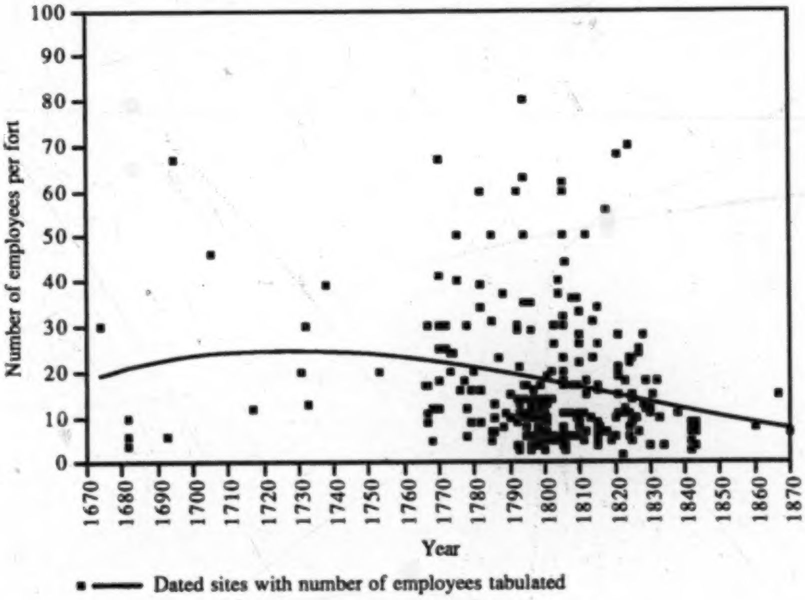


Figure 26. A model of the changing labour population at fur trade sites.

The general model of fort population is based on information pertaining to the French, Pedlars, North West Company and Hudson's Bay Company. The delineation indicates a higher average number of men per fort during the early fur trade than in the later nineteenth century. The overall trend in the number of men per fort becomes less through time from about 1760, although the range of variation per site is greatest between 1760 and 1840. The generalized model is next broken into its constituent profiles for comparison (Figure 27, derived from data in Appendix 5).

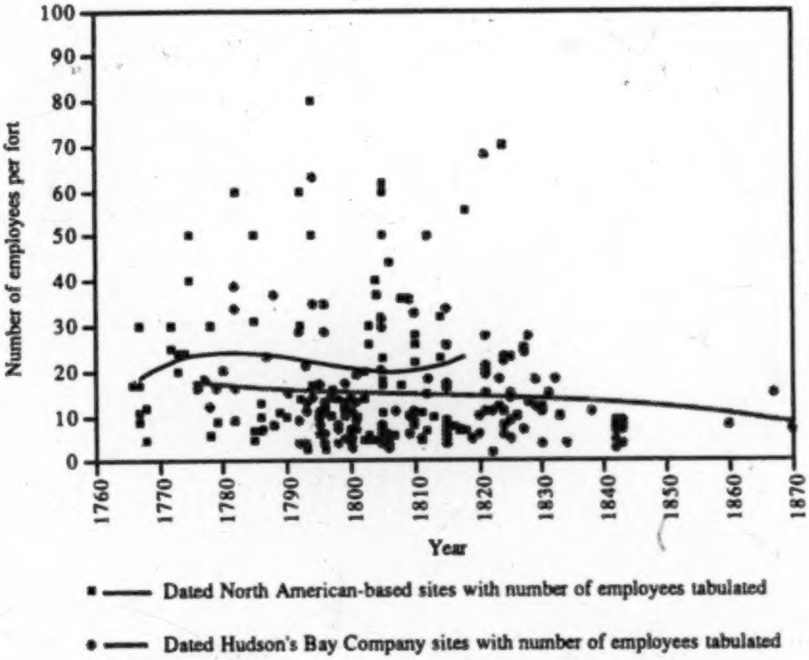


Figure 27. Comparative profiles of the number of employees per fort for the North American-based and Hudson's Bay companies.

The profiles in Figure 27 indicate a larger population of employees per site for the North American-based companies than for those of the Hudson's Bay Company. Sites of the former group of companies had an average of 20 men per site, about five employees (or about one-third) more per fort than the Hudson's Bay Company. This difference might have been perceived as a weakness of the Hudson's Bay Company, and may have been a factor in the destructive attacks by Indians on South Branch House and Manchester House, and in the intimidation tactics of the North West Company, as at Fort Chipewyan and Isle à la Crosse. One assumption is that business mergers of the Pedlars to form small companies, the North West Company 1783, and still later agreements such as with the XY Company in 1804, would result in implementation of more economical measures. This downsizing may have been accomplished by the closure of redundant and unprofitable posts, but it does not appear to have been achieved by reducing the number of employees per fort. For its part, the Hudson's Bay Company was clearly able to withstand the domineering tactics of the North West Company and to carry out a successful trade with fewer men per fort. As the outcome of competition is known, the presence of a larger number of men per fort was not of specific economic advantage. Following amalgamation between the two competitors, Simpson enacted measures to reduce the number of employees. In 1823, as a result of gaining monopoly control in 1821, there were 200 men discharged from Hudson's Bay Company service (Belyk 1995:29). Many of these had probably been employed at posts that were abandoned, but some were also retired from operating forts, thereby contributing to a trend in the declining number of employees per site. This trend continued into the later nineteenth century.

Site Population and Inland Expansion

The labour population per fort is relevant to territorial expansion because it may be inferred that the extension of territorial limits required more logistical support. This need might have been met by increasing the number of men per fort for construction, to serve depot functions, procure provisions and process pemmican, and to transport furs and goods over an increasingly extensive frontier. The development of inland depots such as the North West Company sites of Lac la Pluie, Bas de la Rivière, Ile à la Crosse, and Fort Chipewyan were met by the Hudson's Bay Company portage forts and depots of Cumberland House, Fort Wedderburn, and Fort Douglas. As expansion extended into the upper Peace River and Mackenzie River districts, larger quantities of provisions were required not only from the pemmican stores of the Plains, but also began to be supplied from the Peace River district. Although it has already been demonstrated that the number of men per fort was essentially stable through time, and that expansion continued until the Arctic and Pacific oceans were reached, an illustration of the two profiles in Figure 28 (derived from data in Appendices 2, 5) visually clarifies the general relationship.

Territorial expansion generally took place along with a declining number of employees per fort. More detailed examination of this generalized trend is undertaken by plotting profiles for the major groups of competitors between the years 1760 and 1820. These are given for the North American-based companies and the Hudson's Bay Company in Figure 29 (derived from Appendices 2, 5).

The profiles in Figure 29 delineate fort populations and expansion for the North American-based ventures and the Hudson's Bay Company. The average difference in manpower per fort is suggestive that sites of the former group required a higher average number of employees per site to attempt domination of the trade, conduct business, and carry forth expansion. This larger population had to be transported,

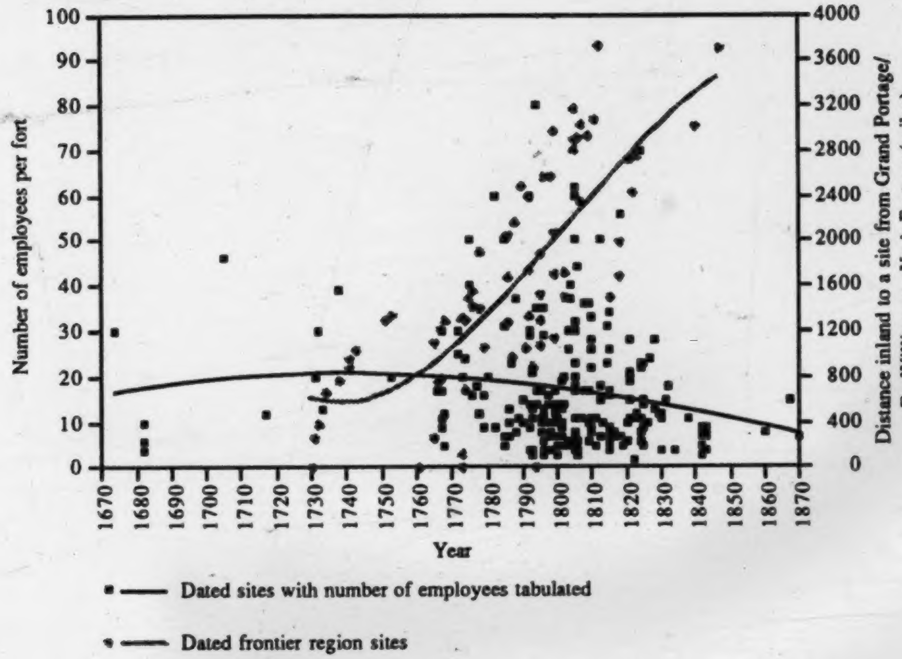


Figure 28. The model of labour population per site laid over the rate of expansion.

provisioned, maintained and, in the nineteenth century, their indebtedness supported by the suppliers of consumable goods. In the first decade of the nineteenth century, the New Caledonia region began to be established with the construction of Fort McLeod, Fort St. James, and Fort George (on the Fraser River), and in the Columbia River basin with Kootenae House, Kullyspell House, Saleesh House, and Spokane House. These developments, together with the purchase of the Pacific Fur Company in 1814, might have led to a slightly higher average site population by the time of amalgamation, but within much the same range of variation as for preceding decades. Expansion could clearly take place without any change in average fort population. A comparison between the North West Company and the Hudson's Bay Company demonstrates the difference. At 2,000 miles inland from Grand Portage, sites of the North West Company had about 20 employees per site, but at a comparable distance the Hudson's Bay Company averaged about 15 men per fort. The profiles indicate the ability of the Hudson's Bay Company to maintain a frontier at a comparable distance beyond a major depot without a concomitant increase in fort populations; that is, its expansion was less labour intensive, more economical.

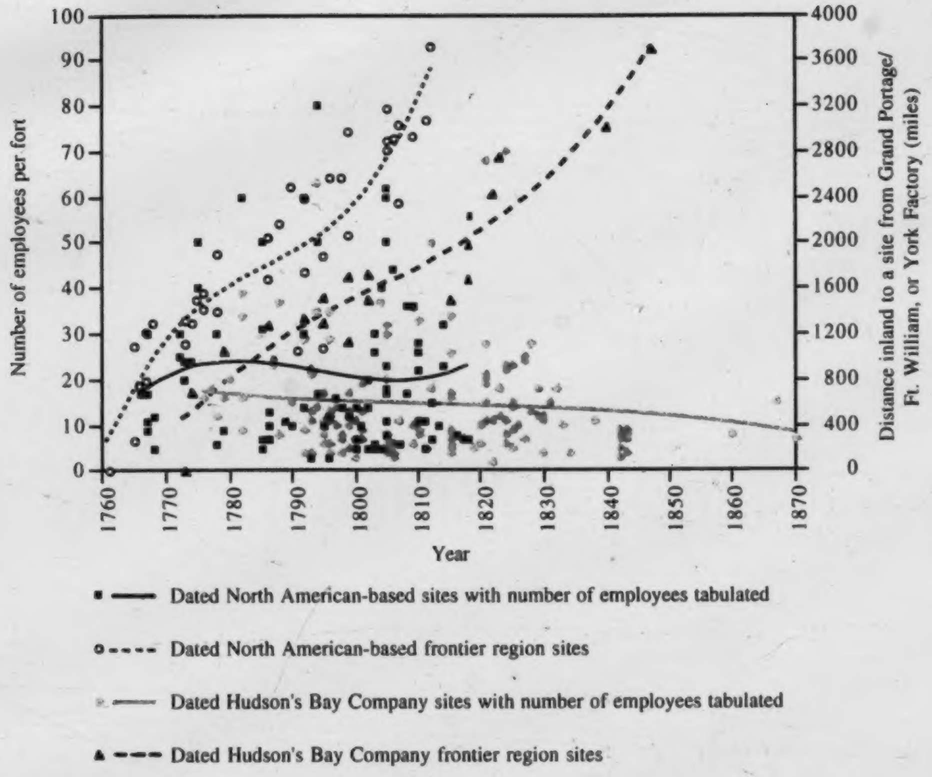


Figure 29. The profiles of labour population per site laid over the profiles of expansion, North American-based and Hudson's Bay companies.

Site Population and the Rate of Fort Construction

The relationship between the number of men per fort and the rate of fort construction is not addressed in the archaeological and historical literature. An assumption here is that there could have been a correlation between the changing number of men per fort and the number of posts constructed. Under one scenario, the larger number of men per fort at earlier sites might be expected to diminish as men were allocated to an augmented network of smaller posts and outposts. Alternatively, larger and more diverse forts with larger complements of employees might replace the need for smaller, less populous and more widely distributed sites, resulting in an increased site population. These different possibilities can be investigated by charting the respective models for each group of data and observing their similarity in Figure 30 (derived from data in Appendices 3, 5).

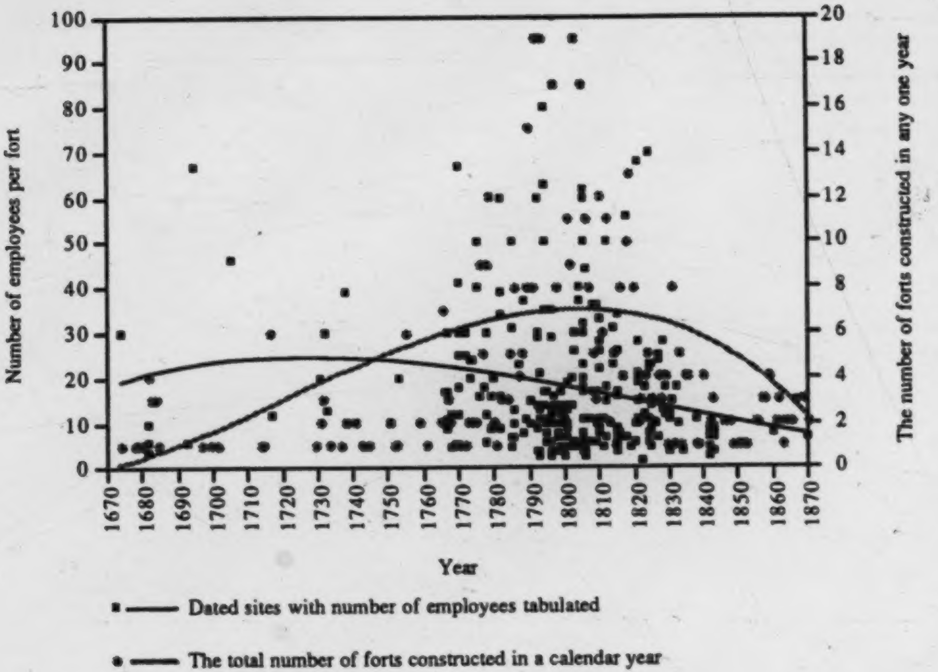


Figure 30. The model of labour population laid over the rate of fort construction.

The initial parts of the curves in Figure 30 depict a slightly rising fort population along with an increasing number of forts under construction through the 1730s. Under the French, this portion of the delineation indicated a peak average of 20 men per fort, and a rate of increase in fort construction at an average maximum of four to five sites per year shortly before the Conquest. During the period 1760-1800/1810, companies erected ever more forts annually, but the average number of employees per fort steadily declined. As more forts were constructed, then, the available work force became less populous at each site and more widely distributed, even though the total number of men engaged in the fur trade may have increased. Following 1810, the rate of fort construction declined in a pattern that continued through to 1870. In 1800 there was an average of about 15 employees per site, and seven sites were built per year. Toward amalgamation, there was a slight reduction in both of these variables, and by 1870 there were averages of less than ten employees per fort and two forts built per year.

Comparison of the above generalized models is next divided into the respective profiles for the North West Company and the Hudson's Bay Company (Figure 31, derived from data in Appendices 3, 5).

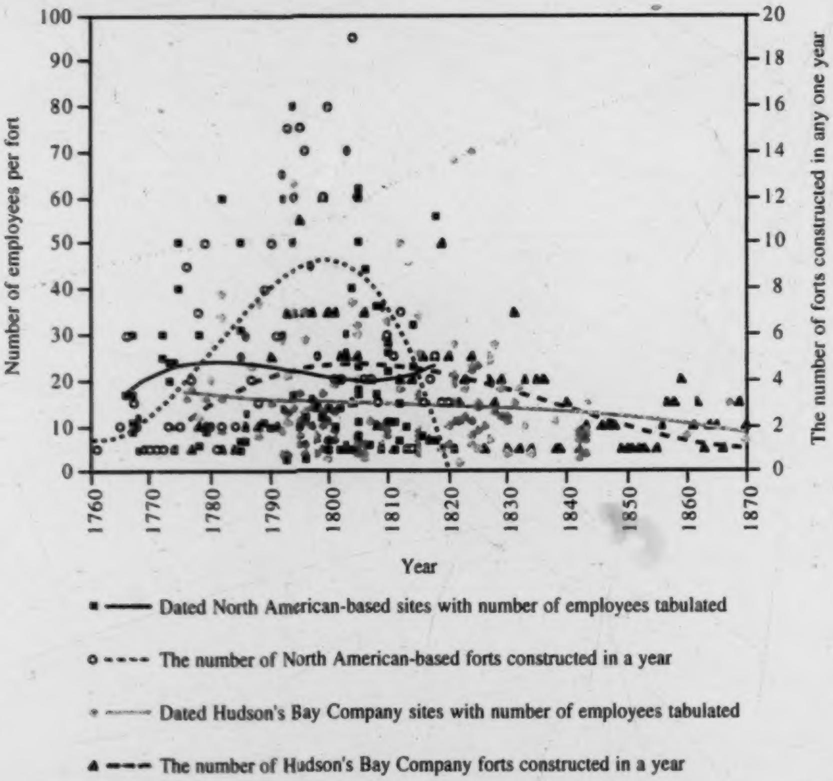


Figure 31. The labour population profiles laid over the profiles of construction, North American-based and Hudson's Bay companies.

The North American-based companies had a consistently higher average number of men per fort than the Hudson's Bay Company, and a rate of construction that rose until 1800 and then decreased to amalgamation. Although the Hudson's Bay Company's site population was always less than that of the North West Company, from 1790 to 1820 they held to a constant rate of construction that averaged between four and five new forts per year. After 1815, the Hudson's Bay Company exceeded its competitor's rate of site construction, but only because the latter's had fallen dramatically.

Site Population and Fort Size

A logical assumption concerning the relationship between fort populations and site size might be that as the former increased, so did the latter. Nicks (1969:33) correlated a smaller resident population at Fort White Earth/Terre Blanche to the smaller portion of this shared fort. North West Company forts, it has since been generalized, were larger in comparison to Hudson's Bay Company posts, (Pyszczyk 1992:36), and the larger size may be attributed to their larger populations. These observations have been based on a subjective evaluation of textual information from a few select sites. Quantification of a larger body of data can be expected to provide a clearer delineation of trends to support broadly-based generalizations. At the level of an overall model, a temporal scale extends from Hudson's Bay Company and French occupations around Hudson Bay, French movement into the west, and includes site populations for the Pedlars, the North West Company, and the inland presence of the Hudson's Bay Company. For the last-named company, the temporal period extends through monopoly control and to the transfer of territorial rights to Canada in 1870. Site populations are expressed as a number of men per fort; fort sizes as the number of square feet per fort enclosure (Figure 32, derived from data in Appendices 4, 5).

It may be generally stated that during early competition between the French and English there was an average of 20 men per fort and fort sizes averaged 20,000 square feet. With the beginning of inland expansion by the French in the 1730s, fort populations began to decrease, and enclosed fort areas to increase, and was an established trend by the entry of the Pedlars and the Hudson's Bay Company into the Northwest. Following amalgamation, the same trend continued to 1870. This pattern is associated with changing dynamics in the fur trade, such as improvements in the development of the provisioning trade, and changes to routes, transportation, and brigade movements. These changes occurred in the environs of the Great Lakes and Hudson Bay, extended to the Plains, and ultimately to the edges of the Arctic and Pacific Oceans. Improvements in social and economic relations with Natives and an increasing emphasis on casual labour, and possibly other forces, may have had some combined influence on the population profiles. The tabulation and graphing of site population and sizes for the North American-based companies and the Hudson's Bay Company from 1760 and 1820 are illustrated for a closer comparison in Figure 33 (derived from data in Appendices 4, 5).

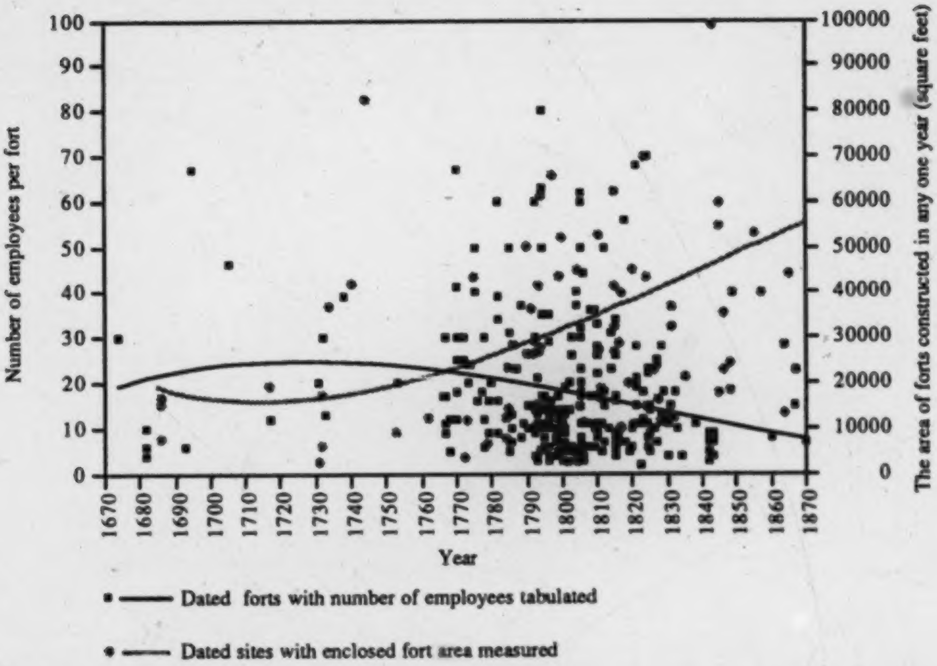


Figure 32. The model of labour population laid over the chronological model of fort size.

For any given date the North American-based companies always had a larger average site population and larger forts than the Hudson's Bay Company. The average number of employees per site remained stable, but the enclosed areas of forts increased through time. During the period of the Pedlars, or small competitors, sites such as those of François LeBlanc, the Frobishers, and Umfreville began to be replaced and augmented by the larger Forts de Prairies described by Henry, Pine Fort on the Assiniboine River, and Pine Island Fort on the North Saskatchewan River. Although there was some banding together of traders at shared locations, including Sturgeon Fort, Fort du Milieu, and Pine Island, this congregation was not accompanied by an increase in the average number of *engagés* per fort. When the Hudson's Bay Company began to compete alongside in the late 1770s, the North American-based companies found it acceptable to continue the maintenance of larger complements of men and large forts, not just as the result of partnership agreements but also as a competitive strategy. If there was any effect, however, it was that the Hudson's Bay Company's sites also began to increase in size. This increase does not appear to have been the result of directed policy. In 1790 the North West Company had an average ratio, square footage to man, of 1,400:1, compared to the Hudson's Bay

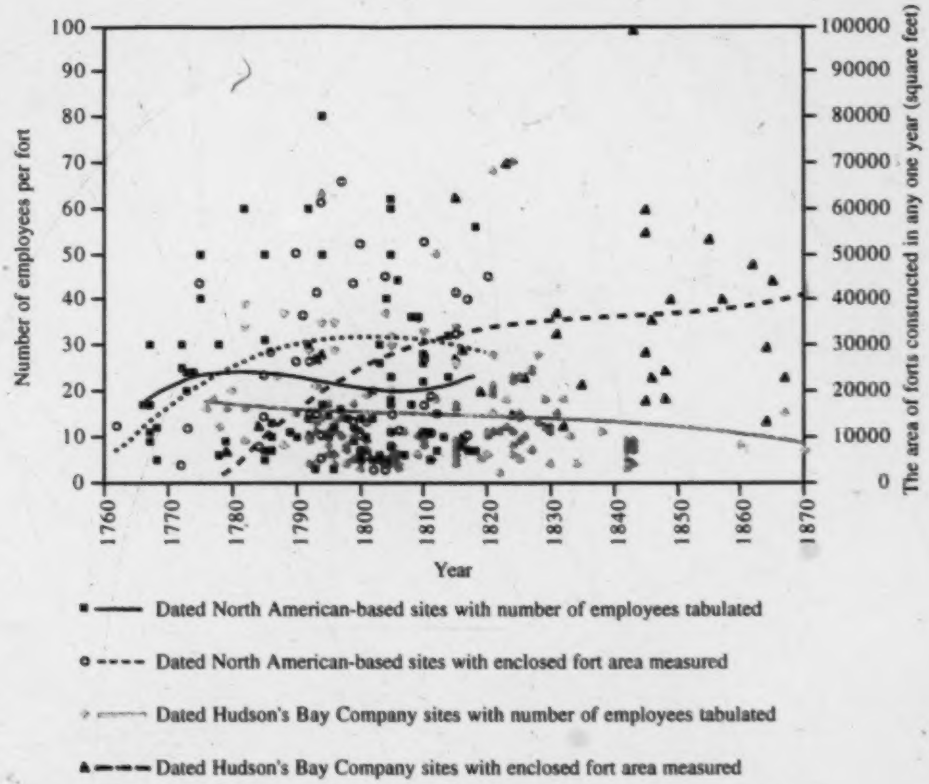


Figure 33. The profiles of labour population laid over fort size, North American-based and Hudson's Bay companies.

Company's 1,000:1. Following this date, increases in the size of Hudson's Bay Company fort enclosures and a gradual decline in fort complements resulted in changes to this ratio until there were 2,000 square feet per man by amalgamation. The ratio of site square footage per employee continued to enlarge to a ratio of about 4,000:1 by 1870.

Site Population and Architectural Diversity

The remainder of this chapter focuses on comparisons between the average number of men per fort and the rate of increasing architectural diversity. These comparisons are made on the same basis as above. A general model of site population is first presented over the model of changing architectural diversity (Figure 34, derived from data in Appendices 1,5).

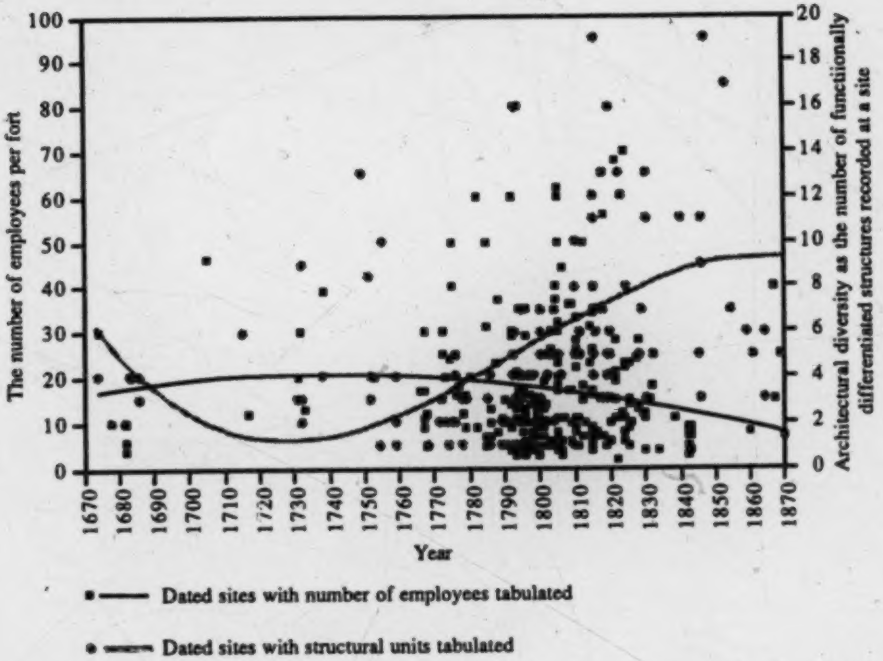


Figure 34. The model of population laid over the model of architectural diversity.

Data before 1750 are spotty, but a trend towards increasing architectural diversity together with a relatively large body of *engagés* per site is contemporary with the entry of the French into *la mer de l'ouest* after 1731. Toward the commencement of the Seven Years' War, the number of *engagés* began to decline as they were required to return to New France. Following the Conquest, the fur trade as a whole manifested a declining average number of men per site and an increase in the number of architectural categories. In about 1770 there was an average of 20 *engagés* and servants per fort and an average of three architecturally distinct structures; in 1800 there were about 18 employees and five or six structures; and in 1820 there were 15 men and seven structures, and by 1870 the averages were nine structures and seven men per site. This pattern of change spanned more than 100 years and is partly explained by the increasing specialization of trades and crafts, a gradual transition in labour policy to the hiring seasonal employees for low-skilled jobs, and gradual improvements in transportation. For a more specific analysis of this overall trend, the demographic population profiles for the North American-based group and the Hudson's

Bay Company, relative to their profiles of architectural diversity, are given in Figure 35 (derived from data in Appendices 1, 5).

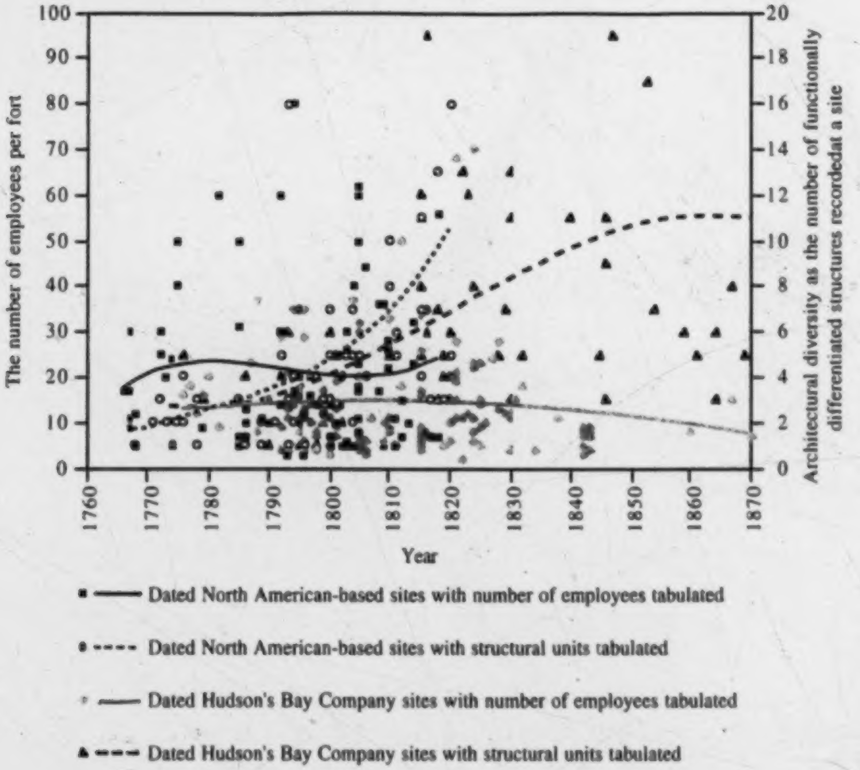


Figure 35. The profiles of labour population laid over architectural diversity, North American-based and Hudson's Bay companies.

The profiles of the North American-based companies and the Hudson's Bay Company in Figure 35 show that the North American-based companies had initially a higher site population of *engagés*, and a slightly lesser degree of architectural diversity than the Hudson's Bay Company. For 1780 this ratio could be given as ten men per structure compared to an average of about five men per structural unit for the Hudson's Bay Company employees. By 1800, with increasing architectural diversity, these ratios changed to 4:1 and 4:1, respectively; were further reduced by 1810 to less than 3:1; and by amalgamation were down to about 2:1 for both competitors. This trend continued towards 1870, when the ration of full-time employees to structural units was approximately 1:1.

Conclusions

North American-based companies maintained a constant average number of *engagés* per fort through much of the competitive period, and continually expanded their frontier. The establishment of the New Caledonia and Columbia departments began with Rocky Mountain Fort in 1795 and Kootenae House in 1807. The opening of these departments added to the burden of transportation and supply demands, but also provided new trade opportunities and, in the Columbia department, led to the development of agricultural production. It was also about this time that North West Company site sizes increased, and architectural diversity noticeably accelerated.

The Hudson's Bay Company first attempted expansion into the Athabasca district with Peter Fidler's Nottingham House in 1802. Although this plan of expansion proved unsuccessful, the overall size of Hudson's Bay Company forts nevertheless increased, as did their architectural diversity. The North American-based companies established control in the Athabasca basin with sites that had more men and less architectural diversity, but in an earlier period when competition was absent from the area. By the time the Hudson's Bay Company mounted an effective challenge in Athabasca, 1815-1821, it had an overall average of 15 men per fort, about the same as 15 years earlier, but its forts now averaged six different structures, were being built at a constant rate, and had almost doubled in size. In the same time range, comparatively, the North West Company had sites that averaged 20 men and nine to ten structures per site, but they had traversed the continent to the Pacific coast, through considerable territory in which there was no competition. When a common distance scale is used, the Hudson's Bay Company was prepared to expand beyond a 1,500 mile frontier with forts that were staffed with fewer servants, were built in the context of a lower overall construction rate, were one-third larger, and featured twice the architectural diversity. The number of full-time employed men at forts was not a causative demographic factor affecting territorial expansion, the rate of fort construction, changes in fort size, or increasingly specialized buildings. The site population, nevertheless, was an infrastructure element that was part of rivalry, was subject to social values and constraints, and was a considered participant in fur trade policy and economic decisions

Chapter 10

A MODEL OF ECONOMIC COMPETITION

A chronological economic model of the fur trade is desirable in order to undertake comparisons of architectural variables. Attempts to obtain furs by contending companies, interests, and individuals is termed competition. When a company dominated the production of a commodity such as furs, then a monopoly existed. In this situation, all of the goods held by a trader could be exchanged at a long-term common standard, a case known as perfect competition (Samuelson and Scott 1980:514-535). This situation essentially characterized the trade of the Hudson's Bay Company while it was located around the shores of Hudson Bay, and that of the French around the Great Lakes, and even into *la mer de l'ouest*. Under these conditions the fur trade of the Hudson's Bay Company, and of New France, was certainly profitable.

A period of less than a perfect trading state commenced following Conquest, when diverse traders, the Pedlars, began to construct posts in ever closer competitive proximity to each other. With the movement of the Hudson's Bay Company inland to Cumberland House in 1774, conditions of economic competition intensified. In the Pedlars' efforts to reduce costs, and thereby increase profitability, they opted for the solution of pooling their stock, as the elder Alexander Henry made plain (Bain 1969:320). These combinations eventually culminated in the North West Company, the largest of the North American-based ventures. Its large size, however, did not exempt it from the negative impacts of competition from the relatively short-lived, Montreal-based XY Company, nor from that of the Hudson's Bay Company. By the beginning of the nineteenth century, direct competition in most areas from both the XY Company and the Hudson's Bay Company was having an impact on North West Company trade. In 1804-05, Duncan Cameron (Masson 1889-90:I:295) of the North West Company was stationed in the Nipigon country where he observed that competition with the XY Company and the Hudson's Bay Company reduced the standard of trade by about one-half. Cameron suggested that pelts in that region might cost three times their actual value due to increases in the practice of gift-giving and extended credit. Although the North West Company had about three-fourths of the trade at that time, he did not foresee a profitable future (Masson 1889-90:I:296,297), because ever more goods had to be sent inland to secure the same number of furs. Not only was direct, under-cutting competition expensive, but so also was the alternative practice of buying out, and/or absorbing the interests, assets, and personnel of its competitors. The greatest of these expenditures were the acquisitions of the XY and Pacific Fur companies which, together with an expansionist drive, resulted in short-term exclusive trade in the Athabasca, Mackenzie, Peace River, New Caledonia and Columbia River regions. The subsequent amalgamation of the North West Company with the Hudson's Bay Company in 1821 resulted in a longer-lasting monopoly covering almost the whole of northern North America until the latter half of the nineteenth century.

In addition to effects on the trading companies, competition and technological development had negative impacts on the fur resource base and the aboriginal population. Robert Hood observed in 1819 the "almost total annihilation of beavers....As early as 1795, the numbers of beaver had begun to decline, coincident with the introduction of steel traps and the use of castoreum as bait" (Houston 1974:36). In terms of effects on aboriginal life, the encouragement of alcohol abuse was probably the most negative in that led to still other problems, alluded to by Alexander Henry the elder at Grand Portage in 1775, where the consequences of competition "were very hurtful to the morals of the Indians" (Bain 1969:235). At Fort des Prairies in February 1776 he again observed that "A competition...afflicts the Indians with a variety of evils" (Bain 1969:320).

Economic competition in the fur trade involved the acquisition of furs, the distribution of goods for their exchange, the management of expenses, maintaining positive trade relations, and an accumulation of wealth. The more efficient competitor avoided waste of money, goods, time, work or other resources by careful planning and making the best and fullest possible use of what was spent. Some characterization of the fur trade economy, as a whole, and by competitor is desirable in order to make comparisons to the architecturally related variables of territorial expansion, a rate of fort construction, fort sizes, site population, and architectural diversity.

Historical Outline and Interpretations of Fur Trade Competition

During his visit to Montreal in 1749, the Swedish scholar Peter Kalm observed that international competition for furs was such that "the English and French endeavor to outdo each other by paying well for them" (Benson 1964:534). During the French regime the competition on the Saskatchewan River influenced the competitive thinking of Hudson's Bay Company management. In its first directly competitive endeavour against the French above Lake Winnipeg, Hudson's Bay Company servants were sent inland. In 1757, at Little Playgreen Lake, "at a Sturgeon fishery, the Indians told [Joseph] Smith that Isham had said that he wished to build a fort there" (Morton 1939:252).

In the post-Conquest period, the Canadian Pedlars competed aggressively with each other. Dissatisfied with the bureaucracy of the fur trade, the Pedlars "conducted a long campaign against the Regulations for the Fur Trade and in March 1768 they submitted a detailed criticism of them to the Government. On April 15, 1768, Lord Hillsborough, as Secretary of State, notified all the governors of the colony that the Indian Trade was to be 'laid open' and restrictions removed" (Wilson *et al.* 1979:7, citing Morton 1973:267-270). A subsequent increase in fur trading activity resulted that was at least partly due to this proclamation, and the first small partnerships were soon formed. Morton (1937:91) cited an account book regarding the partnership between Forrest Oakes and Charles Boyer. Another early agreement between wintering partners and Montreal merchants was noted in correspondence from Joseph Frobisher to General Haldimand: "we were among the number in the year 1769, when we formed a connection with Messrs. Todd & McGill of Montreal" (Wallace 1934:71).

The reduction in furs reaching Hudson Bay from the interior provided the final impetus for the Hudson's Bay Company's move inland. Shortly before this move, one Native, Wappenassew, "who had traded at York Fort for well-nigh twenty years" transferred his trade ties to the Pedlar Thomas Corry at Cedar Lake (Morton 1939:282). Matthew Cocking's awareness of the threat posed by the Pedlars' activity prompted him to subtitle his inland journal "the Hudson's Bay Company's interest, whose trade is diminishing by the Canadians yearly intercepting Natives" (Burpee 1908a:91). In 1774 Samuel Hearne was sent inland to establish the first Hudson's Bay Company trading fort, named Cumberland House, on the Saskatchewan River. Henley House, on the Albany River, became a designated trading post in 1775, although it had been established earlier to entice Natives down to Albany. No other new fort was constructed by the Hudson's Bay Company until Hudson House on the North Saskatchewan River in 1779. During this period, the Pedlars continued to provide aggressive competition among themselves and to the Hudson's Bay Company. Cocking, at Cumberland House, described the outcome of the Pedlars' competition:

> at present the Traders most of them carry on the Business separately, being supplied with Men & Goods from Montreal; But being so Numerous several of them are obliged often to reside in one Place, when to prevent Confusion the Goods are laid in one common Stock for the time. (Wallace 1934:45)

A sharing of interests, through time, involved ever more partners. The first formal agreements were small and made in organizational meetings at Montreal, Michilimackinac, and Grand Portage. By the end of 1782, a combination of North American-based companies and traders

> entered upon and concluded Articles of Agreement, under title of the North-West Company, of which we were named the Directors, dividing it into sixteen shares. (Frobisher to Haldimand, in Wallace 1934:71)

The formation of the North West Company did not eliminate all of the Montreal and Michilimackinac opposition. Competition was periodic with these smaller companies but continuous with the Hudson's Bay Company.

Under the influence of direct competition, the North West Company adopted the policy of lowering the values at which goods were traded for furs. An increase in the presentation of goods as gift in order to attract trade also contributed to the effective lowering of prices. Alexander Henry wrote that the traders at Fort des Prairies in 1775-76 forced the Indians to pay "greater prices than if a competition had subsisted" (Bain 1969:320). Business agreements that were exclusionary sometimes resulted in those left out forming a new source of competition. Examples among these were Peter and David Grant, the South Company, and the XY Company. In addition to amalgamation, intimidation, and competitive pricing, the device of hiring a rival's employees was also useful. In 1773-74 Hudson's Bay Company men sent inland either deserted or returned: L. Primo went to Québec, and J. Cole went over to Joseph Fulton, Peter Pangman's partner at Dauphin (Morton 1939:286, 287). In the rivalry between the North West Company and the Hudson's Bay Company, territorial exclusion was also practiced. Alexander Henry, the younger, wrote of the importance of the Athabasca district to the North West Company:

> It is this vast extent of country from which the N.W.Co. may be said to draw their treasures. It is true, profits arise from the trade in other parts, eastward; but nothing in comparison to what we obtain from the Athabasca country. (Coues 1897:II, 474)

Duncan M'Gillivray, in his journal, provided first hand insight into the practice of competition. In 1795 he reported receiving correspondence by an express from Mr. [James?] Finlay and Cuthbert Grant. M'Gillivray wrote that the accounts of the North West Company from Red River district and posts intermediate were "very unfavourable in every respect" (Morton 1929:58). In the "Lower Department" of the Saskatchewan River, the small independent company of David and Peter Grant established a post at Nipawin in 1793 (see Klimko 1987:9). Competition was immediately provided by the North West Company erecting a nearby post under the direction of Archibald McLeod, and shortly thereafter the Hudson's Bay Company also erected a small post. In 1794-1795, the North West Company procured 115 packs of furs from here, the Grants made 15 packs, and the Hudson's Bay Company seven or eight packs (Morton 1929:59).

A large labour force, important in any economic consideration, was required in order to convey the volume of goods and furs over an extensive network of rivers, lakes, and portages. The North West Company had a longer transportation route from Montreal to the interior than the Hudson's Bay Company. The length of the route has been argued in the literature as one encumbrance to effective competition by the North West Company. These components of the North West Company trade were seen by Innis (1970) as the primary shortcoming in its economic competitiveness. Innis stated that the Hudson's Bay Company's "Dependence on York Factory and the shorter route to the interior gave the Company a decided advantage in transporting heavier goods at a lower cost" (1970:164).

Innis's interpretations have since come under criticism. Eccles (1979:426-28) has pointed out the advantages of a longer navigation season on the southern route, and the superior load carrying capacity of the French and Canadian canoes used inland. He further stated that French goods were more competitive with those offered at the Bay-side posts and the Canadians, in the process of expansion, "garnered the lion's share of the fur trade" (1979:435). In his presentation, he counterfactually asserts that, "had the Seven Years' War not intervened, the Hudson's Bay Company might well have been driven to the wall by the Canadians" (Eccles 1979:434). In another brief examination of the costs of trade over this route in a later period, Glover (in Rich 1951: xxxix) concluded that the longer route of the North West Company wasn't such a handicap because it was organized efficiently.

The period from 1787 to 1795 has been described as "exceedingly" prosperous for the North West Company (Wallace 1934:16) and the profitability of the trade may have been one factor in attracting competition, as well as displacement from areas south of the Great Lakes (Fleming 1928:140). Minor competitors such as Peter and David Grant, who attempted competition in the Saskatchewan and Red River districts in 1793, were "crushed" (Wallace 1934:16), bought out, or absorbed through amalgamation. In one view, Morton (1939:518) described the competition between the North West Company and the XY Company as resulting in such economic losses that "union was simple wisdom." If the XY Company was able to sell 70,000 MB (Rich 1960:221) in London at an estimated price of £62 per pack for a total of about £57,000, then the scale of deficit spending must have been enormous. The losses were supposedly due, in part, to great debauchery of the Natives by liquor, and the gradual exhaustion of fur bearing regions. Rich (1959:II:221) referred to the period up to 1801 as one "of Prosperity," and Wallace (1934:27) considered the period up to 1814 to be profitable. There is a consensus by historians that the economic state of the fur trade conducted by the North American-based companies was profitable through the first part of their history but there is less agreement over how late this period lasted.

The period of competition is variously defined in the literature. Alexander Mackenzie (1971:xix, xx) suggested that the period from 1783 to 1787 constituted "the severest struggle ever known in that part of the world" and compelled the North West Company to allow Gregory, McLeod and Company a share of the trade. Wallace (1934:18) acknowledged that the period of competition between 1797 and 1804 was "not...conducted with the bitterness that had marked previous conflicts." Competition was then limited to the Hudson's Bay Company but "Only after 1811 did the struggle become acute" (1934:25). A comment by Wallace (1934:24) stated, "There had been clashes, but in these, as a rule, the Hudson's Bay men had come off second best. It was not to be expected that poorly paid employees would be able to meet the competition of the bold adventurers who were themselves partners in the North West Company."

The view of archaeologists is that a period of intense rivalry existed among the competitors that began after 1783, when the first North West Company was formed, and lasted until 1821 (Pyszczyk 1992:34; 1987:78). Hamilton (1990:5) similarly viewed the period from 1780 to 1821 as one of dramatic resource-exploitive efforts.

These characterizations of competition were subjective, but not wrong, viewed from the perspective of each author's objectives. The intent, here, is to pool quantifiable economic data to portray more graphically trends in competitive prosperity that can then be related to architectural diversity and its infrastructure variables.

The expansion of the fur trade is not considered to be the only effect of competition. Organizational changes included the hiring of experienced ex-Nor' Westers by the Hudson's Bay Company. By 1816 it had recruited Colin Robertson and John Clarke to carry competition into the Athabasca country. The increased competition, marked by renewed expansion and the defections of traders with expertise, hurt the North West Company such that between 1814 and 1821 "it was plunging into bankruptcy" (Wallace 1934:27). In addition to these factors, the Selkirk grant and the establishment of the Red River colony in 1815 threatened the North West Company's supply of provisions (Wallace 1934:36; Innis 1970:164).

Wallace (1934:30) recognized that it is usual to describe the union brought about in 1821 as an amalgamation of the two companies, but preferred to characterize the event as an "absorption" of the North West Company into the Hudson's Bay Company. From archaeological perspectives, the term amalgamation has been more widespread, but generally perceived as equivalent to absorption. Archaeologists' views of achieving competitive gain evoked those of Ray and Innis. Perry and Clark (1971:6) reported social conflict and diminishing profits on both sides as the reasons for amalgamation. Like historians, archaeologists have given slightly varied interpretations as to the nature of competition and its influence on expansion, trading ventures, the causes of partnerships and amalgamations, and the process of competitive elimination.

Fur trade competition was a contest between different economic interests for an ever larger share of the trade. The outcome of the rivalry was that the Hudson's Bay Company was the victor. This conclusion is reached not just on the basis of a commercial event, the Deed Poll of 1821, but also by varied sources of data. The data, however, are inconsistent over a broad span of time. Comparisons between competitors can be made in terms of the number of canoes and men sent inland, the relative number of returns or packs sent out, and the value of those returns expressed as profits. The relative number of packs sent out by each company over the entire period of competition, for example, is not available. The numbers of men and canoes sent to compete in any one region is incompletely known. Similarly, export and profit accounts are spotty and not easily reconciled. The gaps in the continuity of any record series necessitates the consideration of piecemeal information in an evaluative, subjective form as Innis has done (1970). In none of the fur trade literature, however, is there a delineation to compare, even relatively, the course of economic productivity on both sides. It is suggested here that available economic information might be statistically summarized, as in foregoing chapters, for this purpose.

Modeling Economic Competition

The overlapping, and less than explicit, interpretations outlined above point to the need for more comprehensive and detailed economic examination. A cursory review of readily available information indicates that economic figures provided by Davidson (1918) and Innis (1970) might be used to formulate profiles of economic change through time. Although somewhat superficial, the resultant profiles are considered sufficient to permit a brief examination of their possible relationship to architectural diversity and other variables. The financial states of competitors have been recorded as share values, gross values of fur exports, packs of furs brought out, or numbers of beaver skins derived from trade. Although a relationship existed among these variables, it probably was not constant through time. Historical data are scanty and discontinuous for the North American-based competitors. Accordingly a variety of tabular data are used jointly to assess the course of their fur trade economy.

The acquisition of beaver was a principal objective and a profile of its exportation might indicate relative success among companies. The Northwest fur trade was of primary importance to the North West Company, and accounted for about 75 per cent of Canadian exports (Innis 1970:267). Within the context of the Northwest country, in turn, the Athabasca region supplied over one third of the furs in 1805 (Innis 1970:267). Rich (1960:189) preferred simply to state that the Athabasca supply "predominated." The agreement is widespread among historians and archaeologists that the Athabasca district was important to the North West Company. Athabasca loosely included the Upper English River, Athabasca River, Athabasca Lake and environs, the Slave and Peace Rivers, Great Slave Lake and Mackenzie River districts. Information available as the number of fur packs carried out of Athabasca, and their value can be tabulated. The furs were considered to be more valuable than those obtained elsewhere. The sources for these data are diverse (Appendix 6) and occasionally inconsistent. Innis (1970:267), for example, gave the packs sent out by the North West Company from the northwest country in 1805 as 1,100 *versus* 1,221 *versus.* 1,490, depending on what sub-districts were included.

North West Company share values were supposedly tied to fur sales returns on investment. When share values and the numbers of shares were known, then the annual returns could be calculated. Innis (1970:258, 259) did this, but a trend line has yet to be delineated and reconciled with other measurements of the fur trade. The extant information is used here to construct profiles comparable to those in other parts of the thesis. The curve fits help to bridge the gaps in account records and, consequently, are not historical facts. The discrete North West Company economic fur trade profiles are presented in Figure 36 (derived from data in Appendices 6a-e).

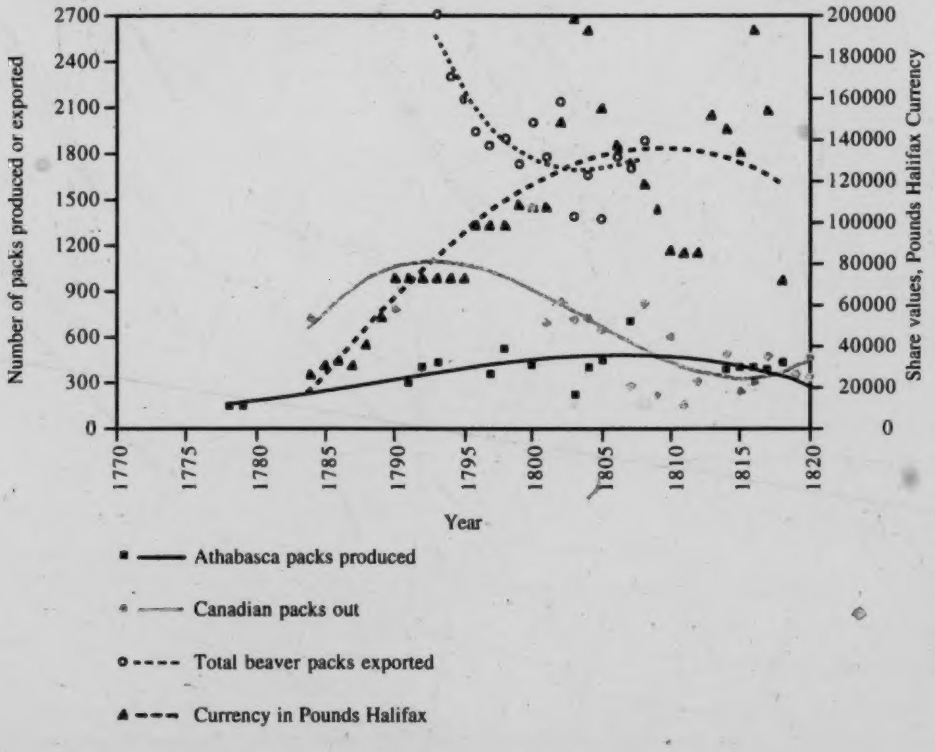


Figure 36. Profiles of various North West Company accounts.

The renewal of the Northwest fur trade after the fall of Montreal was characterized by the influx of many small adventuring groups or Pedlars. Following 1760 the wealth of the fur trade was steadily being accumulated and concentrated. Nevertheless, as late as 1780 Charles Grant wrote that,

> The Indian Trade by every communication is carried on at great expense, labour and risk of both men and property; every year furnishes instances of the loss of men and goods by accident or otherwise....the traders...are indebted from year to year....[They are] men of low [financial] circumstances. (in Innis 1970:213)

These circumstances applied to the Pedlars and were some of the factors in forming partnerships leading eventually to the North West Company in 1783. Figure 36 illustrates that the early end of the time frame portrays lower values in Athabasca packs produced, Canadian packs exported, and share values, than ten years later. By 1795, the number of beaver skins exported, expressed as packs, and the Custom House valuations on the fur trade into Britain, also expressed as packs, were in decline. These two profiles are probably related in that beaver formed the principal commodity in the Custom House valuations. Part of this decline was due to the closure of the United States as an area of operation, and the depletion of fur resources in regions that were also contested by the Hudson's Bay Company. The number of packs shipped out of Athabasca remained constant until about 1805, when productivity from there also began to decline. In contrast to these trends, the value of the North West Company's return on the trade increased until almost 1810.

Information with the broadest temporal span was provided by the number of fur packs sent out of Athabasca. There was a continual rise in the numbers packs dating from Peter Pond's entry to the region in 1778 until the early 1800s. By 1805 the numbers of packs peaked, to be followed by a steady decline. Reduced productivity preceded closure of Fort Nelson (although this was essentially a punitive measure to the Beaver Indians for their attack), and a reduction in the number of establishments including closures in the Mackenzie River district (Davidson 1918:174; Innis 1970:234, 235). Although the Mackenzie River posts were again occupied by 1818, there was no alteration to the overall downward trend of packs from the north.

The profile representing the number of fur packs shipped out of Canada was next longest in duration and formed the only sinuous curve. The initial trend was for rising exports until 1795, followed by a long decline until 1815 when there was a minor increase until amalgamation. Within the time frame of this profile, the overall trend was downward, and variable. Relatively, the Athabasca district produced a proportionately large component of the Canadian packs exported, as accords with historical interpretation. After 1810 Athabasca and probably more distant regions accounted for the largest portion of furs exported from Canada.

An overall decline is also seen in the profile of the number of beaver skins exported from Canada. Innis (1970:264, 265) stated that "The decline of beaver exports is not conspicuous in the period from 1793 to 1808." The curve fit to his data, however, describes a marked decline from about 1793 to 1803, steeper even than that of the Custom House values. Towards the end of this period, the rate of decline was modified slightly by adding the export of beaver skins to the United States. Innis (1970:265) gave these as 19,283 pounds of beaver in 1798 and 29,115 pounds in 1805. Following 1803, the trend line of beaver skins exported stabilizes and is followed by an increase. This change may perhaps be attributed to development of the trade in the Mackenzie River, New Caledonia, and Columbia River districts, and possible re-direction of some trade returns to Montreal as an effect of Jay's Treaty. The increase, however was of insufficient duration to affect the overall trend of this profile. Although one could wish for additional data over a longer temporal span, the profile of beaver skins (converted to packs in the graph) suggests overall decline, and accords with previous curves that Canadian production was probably in decline by 1810.

The trend curve for the value of North West Company fur returns is more problematical. The profile increases until about 1810, when a plateau in values was reached, followed by decline. This curve contrasts with Innis's (1970:258) declaration that declining profitability was evident from 1800, but fits better with Wentzel's (Masson 1889-90:I:109) observation of declining returns in Athabasca. If increasing competition from the Hudson's Bay Company was an important factor in the overall trend of returns (Innis 1970:258), the initial effects may have been observable as early as 1800, but they became yet more apparent after 1810. An additional problem lies in the question of how North West Company returns could be increasing in the face of declining fur and beaver exports. The issue may only partly be resolved by referring to the company's leasing of the King's Posts in 1802, the opening of trade beyond the Rocky Mountains, the elimination of other Canadian competitors and acquisition of their fur returns, and rising fur prices.

Another possible factor affecting profitability might include the perpetuation of long-term debts as a means of reducing short-term payments in wages and salaries. A complex relationship existed between the wages paid to employees, their indebtedness to the company, and its overall economic health, a situation briefly referred to by Davidson (1918:235n.). The inference is that the North West Company was able to increase its apparent profitability by paying out wages in kind rather than currency, a measure probably effective over only a short term. Beyond two years, after which payment on the Montreal invoices would be expected by the suppliers of manufactured goods, the company would begin to bear the costs of purchasing and conveying goods to maintain servants' indebtedness inland, that is, cutting into company profits on a delayed basis, or other wise increasing company debt to suppliers. Count Andreani, a European visitor who traveled through portions of the fur trade region, stated in 1791 that more than 900 employees owed more than twelve or fifteen years of their wages to the North West Company for consumed merchandise (Davidson 1918:235n., citing Andreani).

If the personnel inland continued to accumulate debt, much of it also becomes reflective of the company's indebtedness to suppliers. Despite a high inland mark-up, the cost of goods and provisions to the company to support this debt level must have been enormous. Wages increased throughout competition, and thereby probably worsened company indebtedness. Innis (1970:238) suggested that wages rose only until about 1800, but there are indications wages continued to increase until 1807 (Masson 1889-90:I:96), and possibly even as late as 1819 (Davidson 1918:168). This problem may also help to explain why some principal partners were not accorded a share of the returns, as Alexander Mackenzie complained (Masson 1889-90:I:116-124; II:131). Following dissolution of the company, more than £200,000 were claimed as due the partners, retired partners, their estates, guides, clerks, interpreters, and others (Davidson 1918:192).

Between the peaks of the profiles for Canadian fur exports from Canada to Britain and the decline in North West Company share returns there is a temporal span of approximately 15 years. The decline was unaffected by the small rise in the values of British fur trade imports, and by the slight rise in the number of beaver skins exported from Canada, notwithstanding Mackenzie's report of high fur prices in the London market of 1818-1819 (Davidson 1918:174). It seems that North West Company profitability was maintained for the principal shareholders over a longer period of time than could actually be justified by the underlying economic conditions.

Despite the incomplete North West Company data, it has been quantified in order to provide an aggregate economic profile. The resulting curve is not one of skins, exported packs of fur, fur packs from Athabasca, or share values, but a mathematical construct constituted as a single, averaged, composite profile. This profile can then be compared to one for the Hudson's Bay Company. Davidson (1918:326-328) provided a summation of British Custom House values assigned to the trade of the Hudson's Bay Company between 1772 and 1837. The Custom House valuations were fairly consistent over time even if they were not market prices realized at sales. The resultant profiles of the two competitors are presented in Figure 37 (derived from data in Appendices 6a-e).

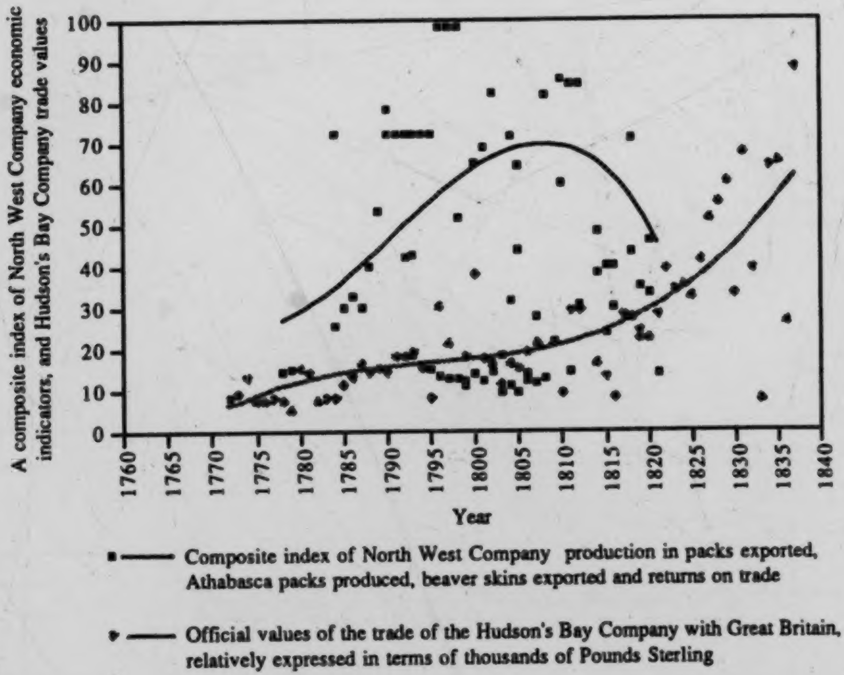


Figure 37. A comparison of economic profiles for the North West Company and the Hudson's Bay Company.

The North West Company profile in Fibure 37 is based on an index of values derived from the separate economic data and merged on the *y*- axis, and normalized for ease of comparison to the Hudson's Bay Company profile. Comparison of the two profiles, consequently, is best generalized without reference to absolute values of furs, packs or currencies. The profiles are merely general economic pictures of the total, overall fur trade of the two companies, as opposed to an inland Northwest trade alone. The North West Company and Hudson's Bay Company profiles are considered to model, if not precisely match, economic interpretations made by historians; that is, they are not, specifically, profit profiles. The growing economy of the North American-based traders attained its zenith around 1805, when their fur trade stabilized for several years. After 1810 there was a decline in the economic profile at a rate that slightly exceeded the earlier rise. The profile for the Hudson's Bay Company displayed a curve of continuing increase in the number of packs exported from Hudson Bay. This rising economic profile persisted throughout the competitive period. Between 1780 and 1805, the North West Company profile increased by a factor of 2.3, and the Hudson's Bay Company curve increased by a factor of 1.73. During this period, then, the North West Company could be said to demonstrate more rapid economic growth than the Hudson's Bay Company. From 1810 to 1820, however, the economic profile of the North West Company fell by 29 per cent whereas production by their competitor continued to rise. Each of these trends is examined comparatively to profiles of expansion, construction, fort size, site population, and architectural diversity.

Fur Trade Economics and Inland Expansion

The North West Company and Hudson's Bay Company profiles for economic change and territorial expansion are shown in Figure 38 (derived from data in Appendices 2, 6a-e), and illustrates a composite economic index of the North West Company that increased as did frontier expansion. During the period that index values doubled, about 1785 to 1805, its frontier was extended by an additional 50 percent, from 1,750 miles inland to 2,750 miles inland. The extended exploitive area partly accounted for the continuing rise in their economic index until 1805-1810. The Hudson's Bay Company also expanded the size of its territory during the same period, but not as much, and increased the number of packs exported from Hudson Bay by about one-half. As the Hudson's Bay Company expanded into areas already established by its competitor, the rise in fur exports must have been the result of growth in its market share. The North West Company, on the other hand, reached the limit of its expansion at Fort George/Astoria in 1812, coincident with the profiled decline in its economic state. Different strategies, however, appear to have affected the rates of each. For the North West Company, economic success resulting from monopoly control in the north fueled expansion. For the Hudson's Bay Company, economic success was achieved by increasing its market share in a competitive context, and expanding slowly. In summary, economic success drove expansion but expansion, in itself, was no guarantee of long-term commercial competitiveness.

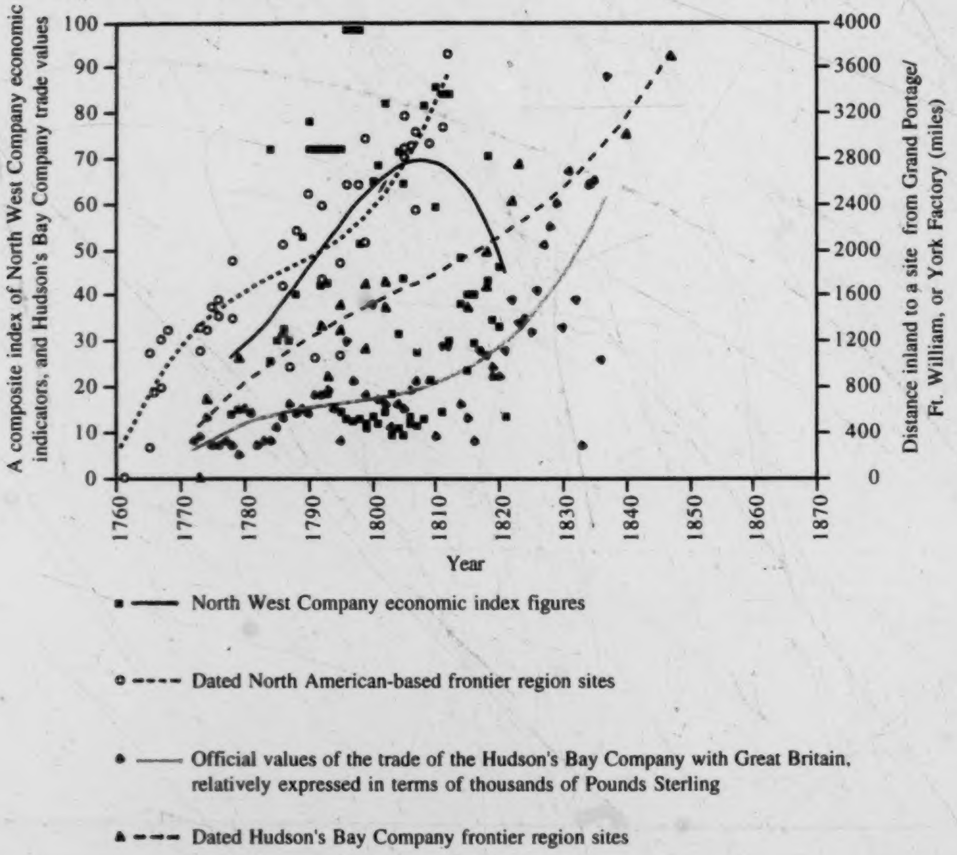


Figure 38. Economic profiles laid over rates of expansion, North American-based and Hudson's Bay companies.

Fur Trade Economics and the Rate of Fort Construction

The economic state of competitors was expected to have a relationship to the number of forts constructed. A company with greater financial resources could be assumed to attempt market domination by constructing more forts than its competitor. Wherever the other North American-based competitors and the Hudson's Bay Company established new posts, the North West Company had a policy of confronting this challenge by erecting its own at a nearby location. The economic profiles of the two groups of competitors and the rate at which their forts were constructed is shown in Figure 39 (derived from data in Appendices 3, 6a-e).

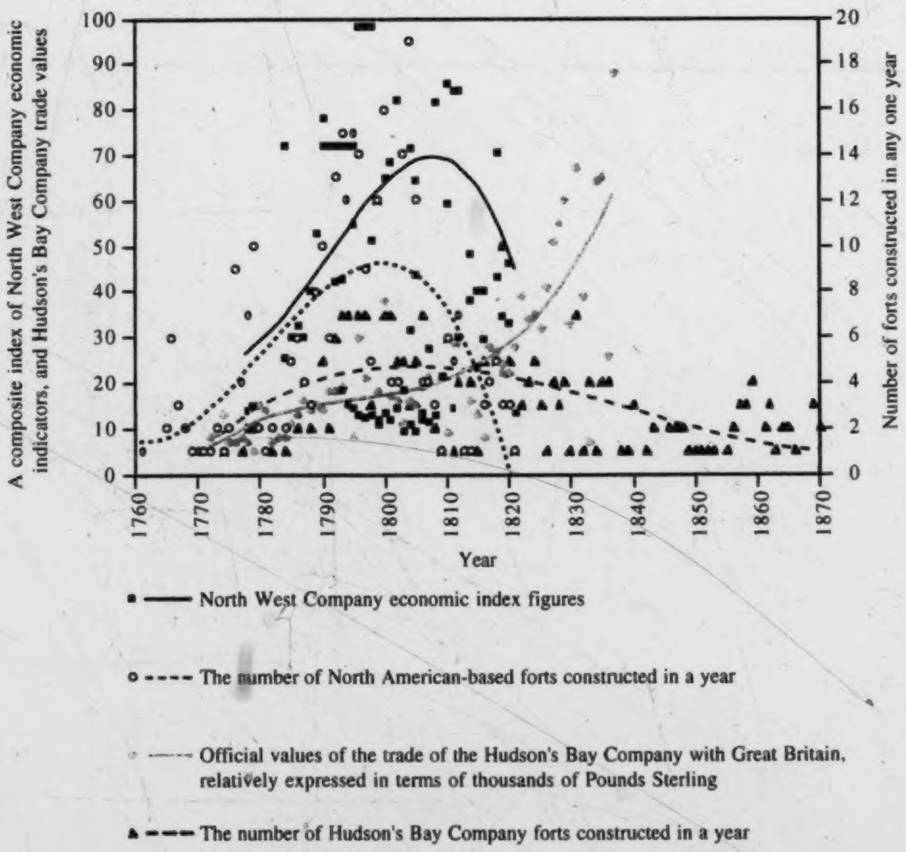


Figure 39. Economic profiles laid over the rates of construction, North American-based and Hudson's Bay companies.

The economic profile for the North West Company and the rate of fort construction moved in tandem from 1780 to 1800. During these two decades both profiles roughly increased by a factor of one. By 1800 the rate of fort construction leveled and subsequently declined. The economic profile, however, continued to rise until about 1810 before also levelling off and declining. Between 1810 and the close of the competitive period, the rate of construction dropped from seven to one per year, and the economic index fell 30 per cent. In the case of the Hudson's Bay Company, over the same period of 1780-1800, both profiles demonstrated a more moderate growth rate, but one that also indicated a possible relationship between economic growth and construction. Economic exports rose by about 66 per cent and the rate of fort construction increased about 70 per cent. From 1800 until amalgamation the value of exports continued to rise, about 15 percent, seemingly unaffected by changes in the rate of new construction that leveled off and then declined slightly. The relationship of economic productivity to construction during the period from 1800 to 1810 indicates that both companies became more efficient in the sense that there was an increase in economic value at the same time that fewer forts were erected. The turning points in the North West Company's experience occurred in 1800 in one profile, and in 1810 for the other. These declines became rapid and, together, heralded elimination of the North West Company. The sustainable economic growth rate of the Hudson's Bay Company, carried out mostly through territory where there had been strong competition, is interpreted as a factor in its ability to construct new forts on a more distant landscape.

Fur Trade Economics and Fort Size

This section compares economic profiles to the architectural factor of fort size. The company that appears to have yielded greater relative financial returns is commonly seen as the more successful competitor. The competitor that provided better returns on investment was then able to re-invest in the marketplace by constructing larger and more durable forts and thereby, presumably, gain a still larger share of the trade. The relative size of forts through time, then, might provide another marker of competitive state. The respective economic and fort size profiles for the North West Company and Hudson's Bay Company are given as Figure 40 (derived from data in Appendices 3, 6a-e).

The North West Company curves indicate slight correlation between the economic profile and the size of fort areas. While the economic profile steadily inclined until about 1805-1810, the profile of fort areas rose from about 20,000 square feet in 1775 to 30,000 square feet in 1790, and stabilized thereafter. About 1810, the economic index began to decline, and by 1820 the North West Company economic index fell by one-third, but the areas of forts remained approximately the same size as they had been for the previous 30 years. Between 1780 and 1820, the North West Company improved its economic profile by about 50 per cent and the square footage of its forts also by about 50 per cent. Within the same time frame, the Hudson's Bay

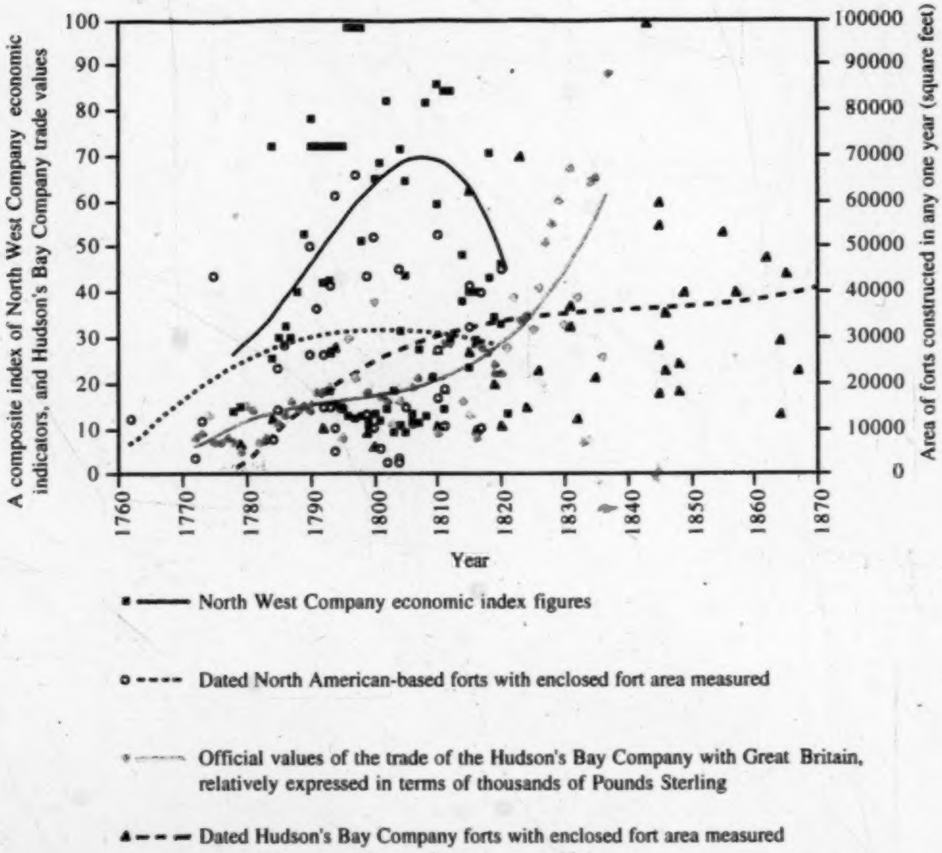


Figure 40. Economic profiles laid over the profiles of fort size, North American-based and Hudson's Bay companies.

Company improved its economic profile by about 200 per cent and the size of its fort enclosures increased by more than 300 per cent. The Hudson's Bay Company profile, in contrast, demonstrates both increasing economic productivity and increasing site size not only until amalgamation, but also until its transfer of territorial rights to Canada in 1870.

Fur Trade Economics and Site Population

If one fur trade competitor (the North West Company) had a larger economy than the other (the Hudson's Bay Company), a trade differential relative to the numbers of employees among competitors seems plausible, at first glance. At the Fort des Prairies, the Canadians had about 50 to 80 men in 1775 (Bain 1969:320), whereas the Hudson's Bay Company had only 16 men at Cumberland House in 1776 (Rich 1951:53). By 1794 the North West Company appeared to have about 170 men above Cumberland (HBCA B.49/a/25a), but the Hudson's Bay Company did not have more than 100 men in the district until 1797 (HBCA B.49/a/27b). William Tomison was convinced of a relationship between the number of men inland and the returns of trade. In 1795 he stated that had the Hudson's Bay Company augmented its manpower by 20 men, "they Certainly might have expected their Trade to have increased, but as it is the Trade will dwindle to nothing" (HBCA B.239/b/56 fo.16). Although the North American-based companies had a greater number of men inland than the Hudson's Bay Company for many years, it does not necessarily follow that a scaled relationship existed to a trade differential. This situation can be seen in an example from 1795-96, including the North West Company's forts Augustus and George, and the Hudson's Bay Company's Fort Edmonton and Buckingham House. The North West Company, for this season, shipped 450 packs of goods inland to this part of the Saskatchewan River compared to 96 pieces by the Hudson's Bay Company (Johnson 1967:12); or, 82.42 per cent *versus* 17.58 per cent of the total goods imported, respectively. Furs sent down river by the North West Company in 1796 amounted to 364 packs *versus* 213 bundles by the Hudson's Bay Company (HBCA B.49/a/27b); or, relative shares of trade of 63.08 per cent to 36.91 percent. Based on figures for the same pairs of forts (HBCA B.49/a/27b), the Hudson's Bay Company's trade share again increased in 1797, to 48.51 per cent of the total, notwithstanding smaller fort complements.

In Athabasca, on the other hand, the North West Company had sufficient men to carry out its own trade and to harass the Hudson's Bay Company employees and the Indians who might have traded with them. At the Hudson's Bay Company post of Nottingham House in 1802 there were six employees, and the North West Company had a much larger complement of *engagés* at Fort Chipewyan. In this case the North West Company brought out 182 packs; the Hudson's Bay Company was driven out in 1806 with almost "No furrs" (HBCA E.4/1). Even when the larger and more populous Fort Wedderburn was constructed in the district in 1815, the Hudson's Bay Company was still able to obtain only five packs. The inference drawn from such records is that a measurement of economic state compared to site population requires statistical generalization to enable wider observations.

Following the practice established previously, the profiles for the economic states of the North West Company and the Hudson's Bay Company are compared to those for the total fort populations of officers, *engagés*, and servants (Figure 41, derived from Appendices 5, 6a-e). The North West Company profiles of economic

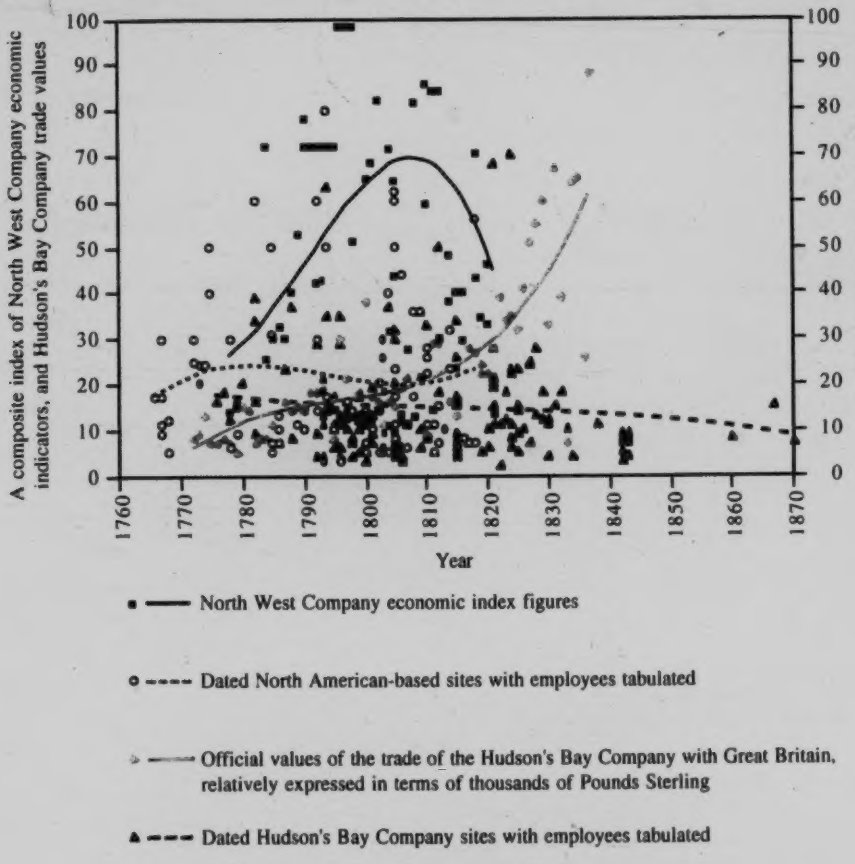


Figure 41. Economic profiles laid over the profiles of labour population, North American-based and Hudson's Bay Company sites.

change and the number of men per fort show negligible concordance. Between 1780 and 1820 the number of *engagés* per fort was at a fairly constant average of about 20 per site while the economic index increased two and a half times before 1810 and then declined. The overall trend was for the economic index of the North West Company to fluctuate while site demography remained stable. The Hudson's Bay Company economic and demographic profiles demonstrated a more regular relationship. Although the number of men per fort remained a constant average of 15 men per fort, the economic profile steadily increased. In other words, the average number of employees per fort did not reflect changes in economic indices. Although the Hudson's Bay Company had fewer men per fort, its overall economic growth was greater than that of the North West Company, notwithstanding the latter's monopoly control in some regions, higher construction rate, and larger and more populous forts.

Fur Trade Economics and Architectural Diversity

Economic profiles and their relationship to increasing architectural diversity is next addressed. An inherent assumption in this examination is that an improvement in the economic profiles of competitors may be attended by increased architectural diversity. The curve fits to the economic indices and architectural diversity for the North West Company and the Hudson's Bay Company are shown in Figure 42 (derived from data in Appendices 1, 6a-6e).

The North West Company economic profile bears only partial correspondence to the curve of increasing architectural diversity. From 1780 to 1810 the economic index more than doubled and architectural diversity increased by two and one-half times. After 1810 the economic profile was clearly declining but the rate of architectural diversity still ascended. For the Hudson's Bay Company, both its economic index and its architectural diversity doubled between 1780 and 1820. Although there is similarity in these relative proportions of economic profiles and architectural diversity, the North West Company's experience after 1810 suggests that diversity, in itself, is no guarantee of economic success; i.e., increasing structural diversity for the North West Company after 1810 was not sufficient to offset the economic stresses of continuing expansion, a falling construction rate, stable site size, and undiminished fort populations. Overall, the Hudson's Bay Company is seen as a more efficient competitor in increasing its architectural diversity, moderate territorial expansion, increasing construction rate, increasing site size, and smaller fort populations. The competitive effects of these factors were probably in play before the turn of the eighteenth century, but their effects only became clearly visible after 1810.

Conclusions

Up to the beginning of this chapter, my summary observations were that real developmental growth in architectural diversity was underway about 1785-1790, major territorial expansion beyond the western limits established by the French was first

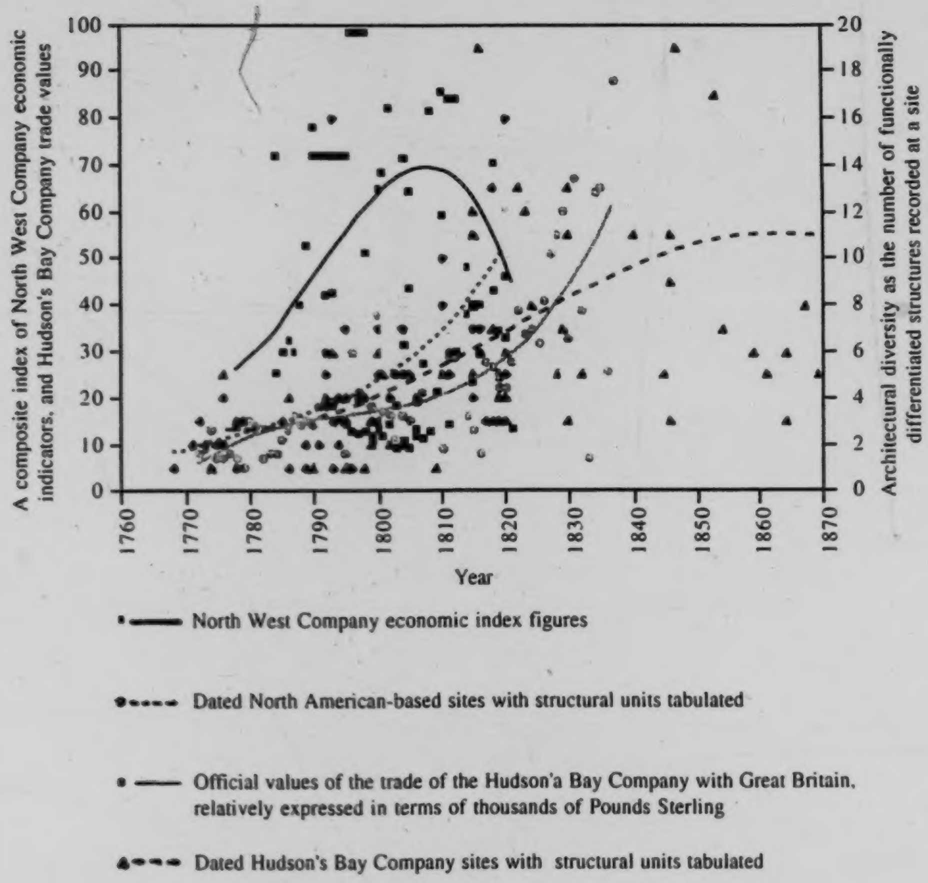


Figure 42. Economic profiles laid over architectural diversity, North American-based and Hudson's Bay companies.

marked by the Pedlars' moves into the upper English River district and the establishment of Pond's fort near Lake Athabasca in 1778, real increase was evident in the rate of new fort construction by 1780, and the overall size of enclosed fort areas was obviously larger by 1790. The intent of this chapter has been to develop fur trade economic profiles for the purpose of providing a visual means to better viewing, examining, and understanding the various relationships among the patterns revealed in this thesis, and has been limited to the period from 1760 to 1840 because this frame encompassed the greater part of the developmental changes seen. This does not imply, by providing such a focus, that economics is necessarily the specific causative factor in the development of architectural diversity. Limitation to this period, however, cannot avoid recognition of essentially two major competitive groups: the North American-based competitors including the Pedlars, various other small Michilimackinac and Montreal-based companies, the larger XY Company, and the dominant North West Company; and, the Hudson's Bay Company that was London-based. Although the period from 1804 to 1821 has been described as one of duopolistic competition (Carlos 1980), if one was to discriminate between the two groups over a longer term based on their development of distinct logistical networks, this description could be extended (Ray 1998).

The economic profiles of the North West Company and Hudson's Bay Company demonstrated some correlation to their respective rates of frontier expansion until about 1810. After this date, the North West Company economic profile declined rapidly. The divergence of the North West Company economic and expansion profiles after this date would cast doubt on an assumption that a continual spread of forts correlates directly to economic health. The Hudson's Bay Company, by constructing fewer forts with fewer employees per fort, and remaining within a frontier limit that was able to sustain proven productivity, was certainly following a practice of control on overhead costs. This company's strict policies on cost reduction, and cost efficiency can virtually be dated from its formation (Innis 1970:125-131). Pressures to extend operations beyond confines known to be profitable were frequently resisted and delayed, as was the first move inland from the shores of Hudson Bay and, later, the push into Athabasca.

There is, again, a degree of similarity between the economic profiles and the rate of fort construction for both companies. The North West Company economic profile shows a decrease in about 1810, but the construction profile had peaked earlier, in 1800. The rate of new fort construction for the Hudson's Bay Company began to decline, about 1805-1810, although the economic profile increased steadily until, and beyond, amalgamation. An interpretation of this pattern is that direct economic competition may well be connected with an increasing rate of fort construction within areas of perceived accessibility, as in the Little North, or even within the Red, Assiniboine, and Saskatchewan river districts. In distant regions such as New Caledonia, where direct competition was absent, fewer posts needed to be constructed, but when economic conditions altered with costs exceeding returns as with the North West Company after 1800-1810, new site construction plummeted across the continent. Along with changed situations the more successful enterprise may, as the Hudson's Bay Company did, hold to a moderate or reduced rate of construction without weakening its competitiveness, and even contemplate the relationship between reserves, risks, and costs in determined expansion, as with its return to the Athabasca district in 1815.

There is possibly a slight correlation in the North West Company between the economic index and the size of forts. The rising rate of the economic profile, for the North West Company, was matched with an increase in the average site to 40,000 square feet until 1810. After this date, its economic profile fell by 30 per cent and its site sizes remained unchanged. The increasing rate of fur packs exported, by the Hudson's Bay Company, constituted a profile with a slower rate of increase than the economic profile of the North West Company. Hudson's Bay Company sites, however, gained in size from one-half to three-quarters of those of its competitor. The economic profile of the Hudson's Bay Company continued to increase and its fort sizes became as almost as large as those of the North West Company. Economic growth and competitive success, during the period under study, correlate to increasing fort size, but economic stagnation or loss does not correlate to any decrease that might be expected in site size.

In the case of the economic and site population profiles, both competitors experienced little change in the average number of men per fort, and that of the North West Company was consistently about one-third to one-half greater than that of the Hudson's Bay Company. The economic and population profiles of the North West Company are not as regular through time as those of the Hudson's Bay Company. The North West Company's fort complements of 15 to 20 men were sufficient to enable economic growth, but a downturn in its fortunes was not accompanied by reduction in the number of employees per site that would be expected. The failure to reduce this number, drastically, may have been a factor in hastening its demise.

The curves of the economic indices and architectural diversity all increased until the dramatic downturn in the economic index of the North West Company after 1810, and its trend of increasing architectural diversity was a response to operational requirements related to territorial spread, whether or not economic success was the outcome. Understandably, then, the architectural diversity of the Hudson's Bay Company continued to increase as an infrastructure development to support an increasingly extensive and complex logistical system, even as a monopoly, until the limits of its trading area were well-established, that is, by 1860.

Chapter 11

CONCLUSIONS

This thesis reflects the scientific and cultural milieu of which it is a part. Trigger's (1991:551-569) concepts of constraint and freedom have been applied to a study of architectural diversity in the fur trade. The nature of the trade, drawing on widespread fur resources to supply an industry and market an ocean away, necessitated the establishment of bases to accommodate traders, accountants, tradesmen, labourers, storage for goods, furs, provisions, and often defensive enclosures. Individual and collective decisions were made in response to perceived costs, risks, resources, and possible returns on trade and, in turn, affected the material culture of fort architecture. Choices made in regard to the locations and numbers of new forts, their size, staffing, and diversity of buildings reflect both constraint and freedom at work. Long-term fluctuations in the frequency of functionally different buildings are a chronicle of culture history and culture change. This view, connected to ecological modeling in the sense of a relationship between forts and a competitive socio-economic environment, fits within a Canadian perspective on archaeology (Kelley and Williamson 1996). The broad synthesis of functionally differentiated structures at sites undertaken in this thesis has recognized a long-term pattern, or Model of Fur Trade Architectural Diversity. Temporal changes in the pattern are not seen as cultural 'evolution,' a term that has found acceptance in other archeological contexts (Teltser 1995, Thurman 1998:51), but, rather, as a model of human choices about the conduct, content and direction of the fur trade.

Factors that affected fur trade administrative decisions were competition, the distribution of fur resources, logistical questions of transportation and manpower requirements, provisioning problems, and relations among traders and Native groups. Decisions affecting the trade were made not just at Fort William or York Factory, but also regionally and locally. Some of the buried physical remains that resulted from such decisions have been excavated, and much information exists in historic documentation. These sources supplied site data for examining the relationship between architectural diversity, an expanding frontier, site infrastructure and the general competitive course of the fur trade. The approach here has demonstrated flexibility in how data from diverse sources may be compared analytically.

An initial task was to set standards in methods of inquiry, including the development of a framework to consistently categorize structural diversity, measure frontier expansion, measure site size, settle questions on site demography, consider a role for economic modeling, and decide on a quantitative means to facilitate pattern recognition. In the comparison of patterns, consistency required , for example, that a third degree polynomial curve applied to North West Company data not be compared to an exponential curve for the Hudson's Bay Company data. Consistency was also sought in the quality of the data collected.

Quantitative syntheses of the archaeological and historical record are infrequently used in the detection and definition of broad patterns, but they are not new (see, for example South 1977), and the discovery of such patterns, or models, always serves as a stimulus to further research and reflection in the search for causative explanation, and understanding. The approach chosen here has been to determine directional trends in the form, rate, and timing of change in curved lines collectively called models and profiles. The archaeological record supplied less data than historic documentation but this fact is irrelevant. The utility of the method allows easy incorporation of additional information as it becomes available. Unless new-found data are substantial in number and well outside the range of variation already recorded, the overall established trends identified here are not expected to alter materially.

The broadest range of this study extends across most of northern North America and from about 1670 to 1870. There was a level of rivalry between the French and English at the earlier end of this period that provided an important historical background to subsequent inland competition among the North American-based companies, and between them and the Hudson's Bay Company. This later era dated from 1774 to 1821 and provided a larger body of data than for the pre-Conquest period. The temporal span following 1821 was one of monopoly control by the Hudson's Bay Company, a phase to which architectural variables were also related. As a starting point, generalized models are developed for each variable as if the fur trade was a single, homogeneous enterprise lacking in internal divisions as represented by competing companies. These models are overall representations of architectural variables but, being of a data-inclusive nature, do not contribute to the identification of trends within the data pertaining to distinct groups of competitors.

Increasing architectural diversity is expressed as the number of functionally discrete structures and definable additions per site. References were made, for example, to provisioning problems in the conduct of the trade before the French reached the bison-rich Plains, and these difficulties continued to hamper their successors, the Pedlars, as far as the North Saskatchewan River, the English River district, and to Ponds' Fort on the Athabasca River. The resolution of provisioning problems is not seen as accidental, but as a response calculated to reduce the risk of weakness or starvation, and also provide the benefit of improved efficiency by reducing the amount of provisions that would have to be carried from Grand Portage or York Factory. This reduction in canoe-borne provisions, then, made room for more goods to be transported inland, and for more furs to be carried out. The development of this logistical improvement is marked at those fort sites that contain the archaeological remains of a provision store. The implication is that responses to other problems are marked by the development of other structural forms, constituting an increase in architectural diversity. As such changes became widespread and persistent, they are here considered to mark qualitative cultural change in the fur fort.

A general summary of the overall course of architecturally related variables is attained by comparison of one model to another. The segments representing the early years of the fur trade are considered weaker because of a scarcity of data, and the downward trend in architectural diversity between 1670 and 1730 can only be explained in light of knowledge about the site sample. The English forts of Hudson Bay and a few French sites accounted for all of the data. The early Bay-side forts and Michilimackinac were the foci of trade activity until the early eighteenth century. During the first and second quarters of the eighteenth century, the French began to develop hinterland posts. These were greater in number, but smaller in their architectural diversity, size, and population than their Michilimackinac base. Although few of these have been archaeologically investigated, and they are not well documented in the historic sources, their numbers affect the trend of the profiles for this time period, and overall trend towards a long-term increase in architectural diversity must be said to be a phenomenon that associates with long-term inland expansion.

The North American-based Pedlars who entered into the fur trade after 1760 adopted the knowledge and experience of the French. The Pedlars consisted of a number of individual trading ventures, partnerships, and small companies.

Competition among these led to the pooling of resources in more inclusive agreements, amalgamations, and larger companies, with a few exceptions. The competitive effect of their trade threatened the continuation of fur trade relations between the Hudson's Bay Company and inland Natives. The Hudson's Bay Company, consequently, was drawn into direct inland competition beginning with the establishment of Cumberland House in 1774, and the elevation of Henley House to the status of a trading post in 1775. The following period of active, direct competition was marked by different economic profiles. After about 1808, the charted decline of the North West Company's economic situation makes more understandable their proposals to come to an agreement with the Hudson's Bay Company in 1810 (Davidson 1918:130). The latter company's reticence is also explained, notwithstanding their Athabasca losses, because their overall economic performance was on the increase. The profitability of the fur trade for the Hudson's Bay Company through 1870 is taken for granted because of the virtually monopolistic situation.

An examination of changes in the range of variation of architectural diversity further benefited from the development of separate profiles derived from the quantification of North American-based and Hudson's Bay Company data. The first pair of curves examined were a representation of chronological change in architectural diversity. In this case, the curves of both groups illustrated a similar trend toward increased architectural diversity, and this trend accelerated through time. The upward direction of the trends was noticeable as early as 1785-1790 for the North American-based companies, and about a decade later for the Hudson's Bay Company. Overall, the North West Company was first to begin diversification, and their rate of development was faster.

In spreading the distribution of forts across North American geography, the North American-based companies were precedent to, and always had a more extensive frontier than the Hudson's Bay Company. Within the total number of forts built, the North American-based companies established a rapid rate of construction before the move inland by the Hudson's Bay Company. Once inland, the latter's rate of construction steadily increased until about 1795. The increase in numbers of North West Company forts was maintained until 1800 and, following a subsequent decline, was surpassed in 1815 by the Hudson's Bay Company. The square footage of North American-based forts was always greater than those of the Hudson's Bay Company, but the latter had what appeared to be a more consistent, and converging rate of increase. Again, in fort population, the North American-based companies had an overall average of one-third more employees per site. Finally, the North West Company's economic average showed a more rapid growth rate than that of the Hudson's Bay Company, garnering six-sevenths of the trade by 1795 (Innis 1970:258). The index for its trade increased by another 20 per cent before 1810, but fell by such a rate before 1821 that it accepted the Hudson's Bay Company's terms for amalgamation. Thus, several aspects of the profiled architectural data were seen to show similarities between the North American-based companies and the Hudson's Bay Company, but those of the former were more complex, spread farther afield, were more numerous, larger, and more populous. The North West Company's economy, to a point, also had a higher growth rate, but one that was followed by dramatic decline still within the context of competition.

The population of variables was next examined on a pair-by-pair basis for each competitor, architectural diversity and the rate of expansion, for example. For the North West Company, this pair of variables always preceded, and their rates of increase exceeded that for the Hudson's Bay Company. This observation could only be made, however, on a temporal scale. On a scale of equal distance inland, whether 1,000 or 2,000 miles, the Hudson's Bay Company displayed greater architectural diversity. The misfortunes of the North West Company during the last decade before amalgamation did not affect its ability to continue diversification and expansion. Its inferior ratio of diversity to distance, however, may have been a factor in the Hudson's Bay Company's economic success. Precedence of diversity and more rapid expansion are unsatisfactory explanations for achieving a competitive advantage, but greater diversity within a given competitive range may be important. Architectural diversity appeared to commence in a context of proximate rather than distant competition, and it marked a trend towards an ever-increasing range of variation even after all competitors had been eliminated, monopoly conditions prevailed, and expansion continued.

The paired relationship of distance compared to the rate of fort construction, for the North American-based companies, preceded and exceeded that of the Hudson's Bay Company. During the initial years of competition, the numbers of forts constructed per year increased as distance increased. This situation prevailed until about 1795, when the Hudson's Bay Company began to construct fewer forts annually and this reduction was followed by the North West Company after 1800. At these dates, respectively, the distances inland were 1,200 miles and 2,300 miles. When each company was 1,400 miles inland, in 1775 for the Pedlars and in 1795 for the Hudson's Bay Company, the former had a construction rate of four per year and the latter five per year. Thereafter, the Hudson's Bay Company's construction rate declined whereas the North West Company continued to build still more sites annually until 1800. In essence, the North West Company's rate of expansion was accompanied by increasing construction from the beginning until its people had reached down the Mackenzie basin to Great Bear River, were established on the upper Peace River, and had been through the Howse Pass into the upper waters of the Columbia River. After these distances had been attained, their annual construction rate dropped. The Hudson's Bay Company, on the other hand, had a declining construction rate after a territorial limit had been reached that extended to Ile à la Crosse in the Churchill basin, Manchester House on the North Saskatchewan River, Chesterfield House on the South Saskatchewan River, and the Red and Assiniboine rivers. These contrasting patterns are indicative of two alternative economic strategies of fort construction and distribution that partly account for differences in the archaeological record.

The next pairs of profiles studied were those of fort size and expansion. For any given date in time the North American-based forts had a higher average square footage and were distributed across a larger geographical area than those of the Hudson's Bay Company. For any comparable distance inland, however, these relationships were more variable. At distances up to 1,500 miles, the Pedlars' sites increased to an average of 20,000 square feet, but the areas of Hudson's Bay Company forts gradually increased to about 25,000 square feet. Beyond this distance, however, the Hudson's Bay Company sites became larger, even during the period of monopoly control. Whether on a temporal scale or a scale of both companies constructing the same number of forts per year, the Hudson's Bay Company constructed smaller forts until after 1815. They also had a smaller average population per fort when average site areas were the same.

The number of employees per fort is then paired with each of the other variables. Site population, in this thesis, is restricted to that portion of a fort's population engaged as partners, clerks, *engagés*, or other salaried or wage earners employed on an annual or full-time basis. The portion of the populace that included women, children, freemen and any other groups or individuals employed on a part-time or seasonal basis is not included. As the populace engaged was almost all male, tabulation of this site population component is expressed as the number of employees, or number of men per fort. The numbers of employees per fort is potentially considered to affect fort architecture. The more employees at a site, the more one would expect that fort size would be larger to provide accommodation for men and their families, and possibly a greater diversity of structures to support them. The North American-based companies had more populous sites throughout the competitive period. Along with this feature went greater architectural diversity, a more extensive frontier, a higher rate of fort construction until 1815, and larger site sizes. On a relative scale related to an equidistant frontier, however, the Hudson's Bay Company appeared more competitive. At about 1,200 miles inland, for example, Hudson's Bay Company forts had more diversity and a similar construction rate, were larger, and had a smaller population. This complex of architecturally related factors, in this example, are then seen to correlate to a competitive success that became apparent about 1810, and that was finalized in 1821.

The profiles derived from economic information provide a visual construct of what is generally known about the economic competitiveness of the North West Company and the Hudson's Bay Company; that the former went bankrupt and the latter continued. The economic index of the North West Company gained its zenith, leveled, and began to decline in the period from 1805 to 1810. Following the commencement of this decline, North West Company forts were on average, more architecturally diverse, had a broader distribution, were constructed at a greater rate (until 1815), and were slightly larger and more populous than those of the Hudson's Bay Company. These architecturally related variables, however, can be related to economic failure on a scale in which equal distance is the common denominator.

The interpretation of this thesis is that each company adopted separate competitive strategies in which all of the variables are manifest. The North American-based companies chose a strategy of rapid expansion in association with rapid economic gain, whereas the Hudson's Bay Company appeared to remain content within a 1,500 mile range of York Factory and to develop moderate, stable economic growth. The flattening and downturn in the North West Company's economy appeared coincident with its expansion beyond a frontier distance of 2,500 miles, marked by Livingstone's Fort on the Mackenzie River, Rocky Mountain Fort on the Peace River, and Kootenae House in the Columbia River drainage. By 1812, with having reached the mouth of the Columbia River, the North West Company essentially ceased its territorial expansion. Economic options taken by the North West Company did not include establishment of additional settlements in western and northern New Caledonia, expansion into the Yukon, actively pursuing the coastal trade in otters and beaver, nor providing effective competition within a 1,300 mile range of York Factory. In a market of declining fur values, and in an economy based on expansion and monopoly control in regions beyond the limits of the Hudson's Bay Company, the North West Company underestimated the requirements and opportunities for economic success.

The expansionary effort of the North American-based companies was initiated by competition among the Pedlars. The formation of the North West Company in 1783 furthered the development of a social hierarchy but competition was only lessened, not eliminated. The largest of these competitors, the XY Company, challenged the North West Company in frontier regions where the Hudson's Bay Company had yet to venture. By 1815, when the Hudson's Bay Company re-entered the Athabasca region, the North West Company had already reached the limits of its expansion. The move by the Hudson's Bay Company into Athabasca was based on proven economic performance and competitiveness well within the North West Company's frontier. Although the North West Company was still able to export 400 packs from Athabasca in 1816 compared to the Hudson's Bay Company's few (Masson 1889-90:I:117), this fact only tells part of the story. That is, the Hudson's Bay Company was better adapted, overall, to its competitive environment than was the North West Company. Part of that adaptation was defined by its forts, characterized as a set of related architectural variables.

One intention of this thesis is to demonstrate that researchers are yet able to gain interpretive insight from re-examination of already existing data. At a more detailed level of analysis it is proposed that architectural artifacts can be examined chronologically relative to the model and profiles of architectural diversity. The frequency of nails and other architectural fasteners and artifacts, relative to other categories of objects might be used to form an artifact profile through time. If compared to the model of architectural diversity, a relationship may be revealed that either shows some degree of correspondence or it does not. An appearance of positive correlation, for example, can next be investigated relative to remains related to the increasing use of boats, the employment of blacksmiths and coopers, and the construction of forges, blacksmith shops, cooperages and carpentry shops. The artifact profiles derived may also be compared to changes in the attributes of architectural style and form in the search for a fuller understanding of competitive behaviour and geographical expansion through time.

The profile of increasing architectural diversity, more than anything else, may be an indicator less of direct economic competition than of an overall indicator of longer term efficiency, growth, development and territorial expansion. The temporal course of architecturally related variables was neither observably drastic or disjointed, nor interminably slow. Rather, change in architectural diversity occurred as a vernacular manifestation of driven cultural change. As opposed to passive Darwinian evolution, driven change occurs more rapidly because beneficial material adaptations are recognized and communicated culturally, that is, they are not tied to genetic change (Gould 1996). The number and mix of personalities, and their influential actions were probably manifold at any one time, and some may now be unknown. Organizationally important decisions were taken relative to the conduct of trade and competition, and the patterns of architecturally related variables resulted from the continuous and combined effects of decisions taken not only at annual general meetings, but also at regional and local levels. Here, a search for correlation between prominent individuals and architectural change forms a field for further research. In a more detailed study focusing on specific structures, the decisions of specific fur trade officers may be revealed as having played important roles in the development of architectural diversity. The genesis for the development of a provisioning system has been barely examined. Fur trade personalities such as William and Duncan M'Gillivray, William Tomison, the Alexander Henrys and others furthered a provisioning economy and system. Similar and more specific studies need to be carried out on the rise and development of canoe and boat building yards and sheds, fur stores and goods stores, and all other architectural features, including stylistic ones, in the fur trade.

Yet another avenue for further research is the exploration of Indian relationships to respective trading companies and individual traders. The domineering tactics of the North West Company aimed not only at Hudson's Bay Company personnel, but also at the Indians. The qualitative aspects of the trade and social relationships between competitors and Natives should be explored in relation to the overall economic trajectory of each company. The ability of the Hudson's Bay Company to compete effectively within a more limited frontier may be partly explained by the development of better trading relations than were those of the North West Company (Rich 1951:liv-lvi). In another vein, traders and voyageurs took many Indian women as wives. To what extent, it can be asked, is it possible to follow these relationships in terms of social housing, interpreters' houses, trading rooms, Indian Halls, and overall fort size? A relationship may well exist here, but it will require both demonstration and analysis.

Aspects of this thesis may also have implications for more generalized issues, such as the question of site size and population. As noted by Schreiber and Kintigh (1996), archaeologists have repeatedly been tempted to associate site size with population size, even if only in a rough sense. Schreiber and Kintigh's study examined this assumption using controlled data on sixteenth-century Spanish-Peruvian *encomiendas* with the result that there was, at best, a weak correlation, but they nevertheless concluded that differences in site function and topography may contribute to an understanding of the apparent ambiguities. In this thesis, site size and site population appeared to vary independently, notwithstanding a constancy of function (fur trade) and overall similarities in topography (site locations near water bodies in subsistence-oriented and/or fur bearing regions in a mid- to north continental context). In this study, then, the observation that site size is not proportional to population size provides a basis for doubting the use of such assumptions in regard to prehistoric problems.

The conclusion of this study is that architectural diversity at fur trade sites through time can be examined as a phenomenon of historical and material culture change. Diversity may have been important, but it was no guarantee of long-term survival for a fur trade entity. The Hudson's Bay Company's competitive effectiveness within commonly shared areas was countered by the Pedlars' and North West Company's greater architectural diversity, more rapid expansion, increased construction activity, larger sites, and greater manpower, but only for a limited time. Perhaps the more conservative cultural changes exhibited by the Hudson's Bay Company in its architectural variation and infrastructure characteristics were more positive, in the sense of being part of a more successful adaptation, but as Gould (1996:222) points out, there could be no guarantee, or certain prediction, that this would be the outcome. In making an overall summary, a combination of human actions in response to fur trade competition motivated expansion, and, in articulation with factors of site size, rate of construction, and specialization of labour, resulted in forts that were differently adapted to their surroundings than their predecessors.

Although the competitors may have had a common goal (the acquisition of furs), and a common ancestry (an European-based cultural tradition), their search for gain (survival) led to different approaches and strategies. The options available for development were somewhat constrained by historical events, for example, the presence of the French in North America and how their participation in the fur trade came to be filled by independent Pedlars. Just as the Pedlars borrowed culturally from the French in the methods and manners of the fur trade, the Hudson's Bay Company depended heavily upon diffusion in the development of their successful economic competition inland. The careful observation of North American-based methods, the acquisition of some of their personnel, and adoption of some of their methods all played a role. The taking of the trade to the Indians instead of waiting at the Bay was a factor in the expansionary movement of the Hudson's Bay Company, the development of its social-structural hierarchy, and its transportation system. These phenomena, collectively, are reflective of a changing ideology and philosophy of how to compete in the fur trade. Thus the study of technology, i.e., architecturally related variables, revealed the patterns of material choices made by competitors in their attempts to effect economic success.

Competition between the English and French was not as great as between the later Montreal Pedlars, the North West Company, and the Hudson's Bay Company. Overall, there were more similarities among competitors until about 1800 than after. The intensity of competition may have been a vital factor in promoting expansion. The ability to undertake expansion beyond certain logistical limits appeared to bear some relation to increased architectural diversity. As an example, had competition by the French been more effective, the Hudson's Bay Company might have moved to the interior sooner. During 25 years of French expansion to the Northwest, they got no farther than the main branch of the Saskatchewan River, and their scale of trade was insufficient to draw the Hudson's Bay Company inland for closer competition. The influx of Pedlars that began in the mid-1760s was immediately competitive among these traders, and their growing numbers and increasingly widespread efforts rapidly gained a large share of the furs that otherwise would have gone to the Hudson's Bay Company. At this time, competition was close among the small North American-based companies, they were on the Saskatchewan River, Hudson Bay was distant, and the degree of architectural diversity was low. The move inland by the Hudson's Bay Company in 1774 provided a source of direct competition by a major competitor that was followed by a process of consolidation among the Pedlars that soon led to the North West Company. The 1780s and the early 1790s were marked by an intensification of competition, expansion through the Parklands and into the Plains, a rapid rate of fort construction, stable site populations, and the beginning of an increase in architectural diversity. Costs that had been associated with earlier endeavours included the extent to which on-board provisions from base depots could support inland trade. During this period, then, the provision trade was developed with the objective of articulating an inland source of supply with fur brigades.

A turning point in the North West Company's competitiveness appeared to have occurred within a date range of 1800 to 1810, with its limit of expansion almost reached, a reduction in construction, stable site sizes and fort population, an economic profile in downturn, but increasing architectural diversity. The period after 1810, in the profiles, did not see much correlation between competition and increasing architectural diversity as one company's economy plummeted while the other's rose and, after 1821, there was no opposition to the Hudson's Bay Company. Architectural diversity continued to increase until about 1860, by which time the Hudson's Bay Company had reached its limits of territorial expansion and consolidated holdings therein. In summary, architectural diversity was seen to commence during a period of direct competition when long distance provision support was a constraining factor. The constraint was overcome by inland development that included the provision store. Thereafter, architectural diversity increased until about 1860, that is, as long as expansion and territorial consolidation continued.

Collectively, architectural changes marked by new and increasing numbers of structures are viewed as adaptations to stress in competition and expansion for furs as a matter of economic survival and gain. The portrayal of a Model of Fur Trade Architectural Diversity, and its related variables, is a reconstruction of an historical past, and its trend. This reconstruction enabled comparison of two competing economic systems across a broad span of time. The temporal scale and variables discussed offer, here, little opportunity for a discussion of individual decision-making in the change process. There is no denial of a role to the individual, but at this level of abstraction, it is simpler to think merely in terms of goal-directed behaviour. The competitive economic context influenced decision-making to instill a maximization of effort at every level of the labour force. The constraints imposed by different socio-cultural values, ethnic composition, and different historical events and traditions led to selective decision-making out of a range of options. Retrospectively, it appears possible to identify which of the ventures appeared collectively to make the right choices in their overall conduct of the fur trade up to 1800-1810 , however, no one could say which of the two competitive strategies would be ultimately successful.

Architectural diversity did not increase much when competitors were remote from each other and when the market supplied sufficient furs and industrially manufactured goods to the traders and Natives. All goods produced by the competitors could be traded (sold) at a nearly common standard. This situation essentially characterized the trade of the French, the Pedlars, and the English until the late eighteenth century. With the movement of the Hudson's Bay Company inland to Cumberland House in 1774, conditions of economic competition intensified. In this situation competition became less than perfect (Samuelson and Scott 1980:514-535) with one competitor underselling the other and leading to eventual economic crisis. Following the defeat of a competitor, its extended frontier, architecture, and personnel were absorbed. The trend to increased architectural diversity continued for the survivor as long as the economic/territorial frontier continued to expand. In this sense, direct competition may not have played, directly, a causative role in effecting fur trade expansion but, rather, been one in a number of factors entwined with expansion, social/structural decisions, increasing architectural diversity and infrastructure changes. After amalgamation, no further threat was posed to the values, character, and logistical adaptation of the Hudson's Bay Company until the arrival of new fur traders, who were able to take advantage of the improvements in transportation and communication represented by steamboats, rail links, and the telegraph. In addition, immigration and population shifts participant in western agricultural and industrial economic development increased demand for cash-based retail sales. In the fur trade, new competitors began to offer cash for furs, another complication for the Hudson's Bay Company. Developments in all of these domains were increasingly complex, diversified, and expansionist. The interesting challenge now is to see how this later reality can be investigated archaeologically in relation to a furtherance of this Fur Trade Model of Architectural Diversity.

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APPENDIX 1. Architectural Diversity at Fur Trade Sites in Northern North America, Based on Archaeological and Historical Sources.

		Architectural Categories							
Date	Site, Location	1	2	3	4	5	6	Ttl.	References
		Fortification, Encl.	Religious Str.	Org./Mgmt. Str.	Residential Str.	Ind./Spec. Str.	Subsistence Str.		See pages 44-45 in thesis for a fuller listing of sub-categories and terms.
1674	Rupert R., HBC, Quebec	1			1	2		4	Tyrrell 1931: 395
1678	Albany, HBC, Albany R., Ontario	1			1			2	Kenyon 1986: 80
1682	Ben Gillam's Fort, American, Hudson Bay, Manitoba	1			1			2	Tyrrell 1931: 10
1683	Rainbow Island, French, Hayes R., Manitoba	1	1		1	1		4	Smythe 1968: 78; Tyrrell 1931: 14, 92
1683	Ft. St. Louis (la Salle's), French, Mississippi R.	1	1	1	1			4	minimum, Hall 1991:18
1684	French Creek, French; Hayes R., Manitoba	1			3			4	Smythe 1968: 78; Tyrrell 1931: 13
1686	Albany, HBC, Albany R., Ontario	1		1.5	1	0.5		4	Kenyon 1986: 79
1686	Moose Factory, HBC, Moose R., Ontario	2			2			4	Kenyon 1986: 82
1686	Rupert House, HBC, Rupert R., Quebec	2			1			3	Kenyon 1986: 78, 79
1715	Michilimackinac (I), French, Michigan	1	1	2.5	2			6	Stone 1974: 8, 312-327, 333.
1731	Fort St. Pierre, French, Rainy River, Ontario	1			2			3	Burpee 1927: 102, 103; Champagne 1968:124
1732	Fort Prince of Wales, HBC, Hudson Bay, Manitoba	1			2			3	Hamilton 1990: 81, plan, citing Tyrrell 1894
1732	Fort St. Charles, French; Lake of the Woods, Minnesota	1	2	2	2	2		9	Burpee 1927: 103; Prud'homme 1916.
1732	Lac Chamouchane, French, Quebec				1	1		2	Francis and Morantz 1983: 37
1734	Ft. Rouge, French, Red and Assiniboine rivers, Manitoba	1	1		1			3	Gough 1988:21
1738	Fort la Reine, French, Assiniboine R., Manitoba	1			2	1		4	Burpee 1927: 308, Brymmner1887: clxv

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		Architectural Categories							
Date	Site, Location	1	2	3	4	5	6	Ttl.	References
1749	Michilimackinac, French, Michigan	1	2	3	1	2	4	13	M.F. from plan in Gerin-Lajoie 1976: 5
1751	Michilimackinac (II),French, Michigan	1	1.5	1.5	2	1.5	1	8.5	Stone 1974: 8, 312-327, 333.
1752	Fort Vaudreuil, French, Mississippi R., Iowa	1			1	1		3	Birk 1991: 255, citing Bailey 1975: 71.
1752	M20 Fort Duquesne, French, Mississippi R., Minnesota	1			1	1.5	0.5	4	Birk 1991: 237-266.
1754	La Corne/Ft. St. Louis, French, Saskatchewan R., Saskatchewan				1			1	HBCA B.239/a/40
1754	Paskoyac French, Saskatchewan R.				1			1	HBCA B.239/a/40
1755	Michilimackinac (III),French, Michigan	1	2	3	1	2	1	10	Heldman and Minerly ?: 74; Stone
1755	Ottawa-Mattawa route, French, Ontario	1		1				2	Bain 1969: 19
1755	Ottawa-Mattawa route, French, Ontario			1				1	Bain 1969: 25
1755	Ottawa-Mattawa route, French, Ontario	1		1				2	Bain 1969: 26
1755	Ottawa-Mattawa route, French, Ontario			1				1	Bain 1969: 19
1755	Sault Ste. Marie, French, Ontario	1			3			4	Bain 1969: 60, 61
1768	LeBlanc/Finlay's House (FhNa 19), Pedlar Post, Saskatchewan R., Saskatchewan	1			2	1		4	Kehoe 1978: 57-65
1768	LeBlanc/Finlay's House (FhNa 19), Pedlar Post, Saskatchewan R., Saskatchewan				0.33	0.66		1	Klimko 1990
1771	Corry's Fort, Pedlar, Cedar I., Manitoba	1			1			2	Tyrrell 1934: 12
1772	Blondeau's House, Pedlar Post, Red Deer R., Man/Sask	1			1		1	3	Tyrrell 1934: 33
1773	LeBlanc/Finlay's House (FhNa 3), Pedlar Post, Saskatchewan R., Saskatchewan	1			1			2	Kehoe 1978: 3, 4, 10-24.

APPENDIX 1. Architectural Diversity at Fur Trade Sites in Northern North America, Based on Archaeological and Historical Sources.

		Architectural Categories							
Date	Site, Location	1	2	3	4	5	6	Ttl.	References
1773	LeBlanc/Finlay's House (FhNa 3), Pedlar Post, Saskatchewan R., Saskatchewan				0.8	0.2		1	Klimko 1990.
1773	Fort aux Trembles, Pedlar Post, Saskatchewan R., Saskatchewan	1			1			2	(Also known as Isaac's House, FhNc 1) Wilson, Hall-Donahue and Carter 1979: 1-57.
1774	Cumberland House, HBC, Cumberland L., Saskatchewan				1			1	Tyrrell 1934
1775	Amisk L., Frobisher-Henry, Pedlar Post, Saskatchewan				2			2	Bain 1969: 264, 265
1776	Cumberland House, HBC, Cumberland L., Saskatchewan	1		1	1	1	1	5	Rich 1951: 40, 78, 81, 83, 84
1776	Sturgeon Fort, Pedlar Post, Saskatchewan R., Saskatchewan	1			1		2	4	Barka and Barka 1976: 11-57.
1776	Michipicoten, "Jobber's" Ft., Pedlar Post, Ontario	1			1			2	Hamilton 1990: 125, citing HBCA B.86/a/29/25
1776	Michipicoten, A. Henry's Ft., Pedlar Post, Ontario	1			1			2	Hamilton 1990: 125, citing HBCA B.86/a/29/25
1778	Grand Portage, Pedlars, L. Superior, Minnesota	1		2				3	Thompson 1970: 29-33.
1778	Clark's House, Pedlar, Sturgeon L.,				0.25	0.5	0.25	1	Lytwyn 1986: 36
1779	Hudson House, HBC, Saskatchewan R., Saskatchewan	1			1		1	3	Rich 1952; cf. 4 structures of Clark 1969: 28-33.
1785	Pine Fort, Pedlar Post, Assiniboine R., Manitoba	1			1		1	3	Hamilton 1986; same number of structures, but different apportionment in Tottle 1981
1786	Pine Island Ft., Pedlars/NWC, N. Saskatchewan R., Saskatchewan	1			1	1	1	4	Ranere 1967
1786	Manchester House, HBC, N. Saskatchewan R., Saskatchewan	1			1	1	1	4	HBCA B.121/a/1-3

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		Architectural Categories							
Date	**Site, Location**	**1**	**2**	**3**	**4**	**5**	**6**	**Ttl.**	**References**
1786	Slave Ft./Fort Providence, Pedlar Post, L. Leroux, N.W.T				1			1	Perry, B.D. and W.D. Clark 1971: 1-13
1789	Thorburn Post (FhNa 7), Pedlar Post, Saskatchewan R., Saskatchewan				1			1	Klimko 1990.
1789	Fort Providence, Pedlar Post, N.W.T				1	1		2	Perry, B.D. and W.D. Clark 1971
1790	Red Lake, HBC,				1			1	HBCA B.177/a/1 fo. 17d
1791	Riviere Tremblante, NWC, Assiniboine R., Manitoba	1			1			2	M.F. from Mackie 1968: 104
1792	Buckingham House, HBC, N. Saskatchewan R., Alberta	1			2	1		4	Nicks 1969
1792	Ft. George, NWC, N. Saskatchewan R., Alberta	1			3	2		6	Kidd 1970: 215; and Losey, Pyszczyk et al. 1980: 183; cf. 7 from Kidd's plan 1970: 45; cf. 9 in Pyszczyk 1992: 36
1792	Ft. Fork, NWC, Peace R., Alberta	1			1	1		5	Mackenzie 1971: 129-135; Arnold 1972
1793	Riviere Tremblante, NWC, Assiniboine R., Manitoba	1			2			3	Mackie 1968: 104
1793	Grand Portage, NWC, L. Superior, Minnesota	1		1	1	3		16	Gates 1954: 94
1793	Grant-McLeod, Pedlar Post, Saskatchewan R., Saskatchewan				0.66	0.33		1	(North House, FhNa 12) Klimko 1989 (7?) .
1793	Brandon House (I), HBC, Assiniboine R., Manitoba							6	Hamilton 1990: 101
1794	Rock Depot, HBC, Hayes R., manitoba			1	1	1		3	Smythe 1968: 83
1794	Rocky Mountain Ft., Peace R., B.C.							2	Hamilton, Burley and Moon 1988; Wallace 1929: 71; Smythe 1968: 276
1794	Sandy Lake, NWC, Minnesota	1			1.33	1.33	0.33	4	Hart, 1926: 318-321.
1795	Carlton House, HBC, Saskatchewan R., Saskatchewan	1			1	1		3	HBCA B. 27/a/1

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		Architectural Categories							
Date	**Site, Location**	**1**	**2**	**3**	**4**	**5**	**6**	**Ttl.**	**References**
1795	Ft. George, NWC, N. Saskatchewan R., Alberta	1		2	2	2		7	Kidd 1970:45
1795	Ft. Edmonton, HBC, N. Saskatchewan R., Alberta	1			1	1	1	4	Johnson 1967: 13-, 17, 20, 21, 49.
1795	Wegg's House, HBC, Setting L., Manitoba				1			1	Smith 1988
1796	MacDonnell's House/Assiniboine/La Souris (II), NWC, Manitoba				1			1	Hamilton 1990: 13, citing Carter 1980: 74; but cf. Ft. Assiniboine
1797	Carlton House, HBC, Saskatchewan R., Saskatchewan	1		1	1		1	4	HBCA B.27/a/1, B.27/a/2
1797	Chaboillez' Ft., NWC, North Dakota	1			2	1		4	Hickerson 1959: 286
1798	Red Deer L., NWC, Lac la Biche, Alberta				2	1	1	4	MG 19 A8 vol. 5
1798	Setting R., HBC, N. Saskatchewan R., Saskatchewan				1			1	B.197/a/1
1799	Acton House, HBC, N. Saskatchewan R., Alberta	1						5	M.F. from plan in Noble 1973:61
1799	Bolsover House/Barren Ground L., HBC, Meadow L., Saskatchewan				1	1		2	HBCA B.20/a/1; B.104/a/1; Smythe 1968: 237
1799	Greenwich House, HBC, Lac la Biche,				1	1	1	3	HBCA B.104/a/1
1799	Rocky Mountain House (I), NWC, N. Saskatchewan R., Alberta	1			2			3	Steer and Rogers 1978: 48, 166, 183; cf. 4 str. in MG19 C1 vol. 14
1799	Somerset House, HBC, Saskatchewan				1	1		2	HBCA B.204/a/1
1800	Chesterfield House, HBC, S. Saskatchewan R., Saskatchewan	1			2	2	1	6	HBCA B. 39/a/2; Johnson 1967: 265-314
1800	Ft. Alexandria, NWC, Assiniboine R., Sask.	1			2	3	1	7	Gates 1954: 121-186; Lamb 1957
1800	Grand Portage, NWC, Lake Superior, Ontario	1			2	2		5	Thompson 1969

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		Architectural Categories							
Date	**Site, Location**	**1**	**2**	**3**	**4**	**5**	**6**	**Ttl.**	**References**
1800	Greenwich House, NWC, Lac la Biche, Alberta				1	1	1	3	Johnson 1967: 216; McCullough and Maccagno 1991: 69
1800	Island L. House, HBC, N. Sask. R., Alberta	1			1	1		3	HBCA B.92/a/1
1801	Chesterfield House, S. Saskatchewan R., Saskatchewan	1		1	1	1	1	5	Johnson 1967:268, 272, 314
1802	Park R., House, NWC, North Dakota	1			1	2		4	Gough 1988: 74, 75
1802	Yellow R., NWC, Minnesota							4	Hamilton 1990: 109
1802	Nottingham House, HBC, Lake Athabasca, Alberta				1	1		2	Karklins, 1983: 22
1803	Yellow R., NWC, Minnesota							5	Hamilton 1990: 109, as per XY Co. addition
1804	Ft. La Souris, Souris/Assiniboine R., NWC, Manitoba							7	Stewart 1930: 18, citing Bryce 1886
1804	Connor's Snake R. Post, NWC, Minnesota	1			2	1	1	5	Gates 1954: 254-257
1804	Sayer's Snake R. Post, NWC, Minnesota	1			0.5	0.25	0.25	2	Hamilton 1990: 77, 106-108
1805	S. Branch Hse, NWC, S. Saskatchewan R., Sask.	1			2	2		5	Lamb 1957: 97
1806	Ft. St. John, NWC, Peace R., B.C.	1						4	Fladmark, Finlay, and Spurling 1977: 295
1809	Eagle L., HBC, Ontario				0.5	0.5		1	Williams 1975:99
1810	Acton House, HBC, N. Saskatchewan R., Alberta	1						6	Noble 1973:61
1810	Ft. Gibralter, NWC, Red R., Manitoba	1		2	2	2	3	10	Wolk 1982: 27
1810	Rocky Mountain House, NWC, N. Saskatchewan R., Alberta	1						8	Steer and Rogers 1978:48, 106, 120, 127, 134, 143, 153, 187
1810	White Earth Ft./Ft. Edmonton (III), HBC, N. Saskatchewan R., Alberta	1						5	Nicks 1969: 64-80

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		Architectural Categories							
Date	**Site, Location**	**1**	**2**	**3**	**4**	**5**	**6**	**Ttl.**	**References**
1811	Ft. Astoria, Pacific Fur Co., Columbia R., Oregon	1		1	1	2		5	G. Franchere cited in Todd 1964:91
1811	Okanogan Ft., NWC, Columbia R., Washington	1			2	3		6	Grabert 1968: 82
1815	Ft. Augustus (IV), NWC, N. Saskatchewan R., Alberta	1		2	4	2	2	11	Hamilton 1990: 87
1815	Ft. Edmonton (IV), HBC, N. Saskatchewan R., Alberta	1		2	5	2	2	12	Hamilton 1990: 87
1815	Carlton House (IV), NWC, N. Saskatchewan R.,	1			2	1		4	plan HBCA G.1/76
1815	Carlton House (IV), HBC, N. Saskatchewan R., Saskatchewan	1			2	2		5	plan HBCA G.1/76
1815	Cumberland Ft., NWC, Cumberland L., Saskatchewan	1			3	2	1	7	plan HBCA G. 1/96; cf. 11 str./str. div'ns as per plan G.1/96
1815	Cumberland Ft., HBC, Cumberland L., Saskatchewan	1		1	3	1.5	1.5	8	plan HBCA G. 1/96; cf. 11 str./str. div'ns as per plan G.1/96
1815	Jack River House, HBC, Manitoba		1	1	1	2		5	Smythe 1968: 86, 87; Ross 1855: II: 22 ff.
1815	La Montee, NWC, N. Saskatchewan R., Saskatchewan							7	plan HBCA G.1/76
1815	Severn (II), HBC, Severn R., Ontario	1		2	1	6	1	11	HBCA B.198/e/6 fo. 19.
1816	Neosqueskau, HBC, Ontario	1		1	1	2.66	0.33	6	HBCA B. 143/e/3 fo.1
1816	Ft. Okanagan, NWC, B.C.	1			2	2	2	7	Grabert 1968
1816	Fort William (I), NWC, L. Superior, Ontario	1		8	4	10	4	27	Kleinfelder and Taylor 1972: Appendix C1.
1816	York Factory, HBC, Hayes R., Manitoba							19	Hamilton 1990: 79 citing G.1/113; cf. 15-32 structures and str. div'ns as per HBCA
1817	Ft. Alexander, NWC, Mackenzie R., NWT				1.5	1.5		3	Janes, R. 1974: 9, 17, 36, 45, 62

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		Architectural Categories							
Date	**Site, Location**	**1**	**2**	**3**	**4**	**5**	**6**	**Ttl.**	**References**
1818	Brandon House (II), HBC, Assiniboine R., Manitoba	1			3	3		7	Stewart 1927: 30, citing Fidler; Smythe 1968: 128, 129
1818	Colvile House, HBC, Peace R., Alberta				2	1		3	Rich 1938: 384
1818	Ft. George-Astoria, NWC, Columbia R., Oregon	1		3	3	4	2	13	Hussey 1970:257
1819	York Factory, HBC, Hayes R., Manitoba	1			2	2		5	Smythe 1968: 80, 81
1819	Harrison's House, HBC, L. Athabasca, Saskatchewan				2	1		3	Smythe 1968: ; Simpson's Ath. Journal
1819	Lac la Biche, HBC, Alberta	1			2	1		4	HBCA B.115/e/1, fo.3
1819	Riviere aux Morts, Red R., Manitoba							3	Smythe 1968: 107, citing Fidler
1820	Ft. Chipewyan, NWC, Alerta	1		3	4	3.5	4.5	16	HBCA B.39/a/22 fo.69
1820	Lesser Slave Lake, HBC, Alberta	1		1	2	1.5	0.5	6	HBCA B.115/e/2 fo. 4d
1820	Slave Fort, NWC, Moose Deer I., Great Slave L., NWT	1			3	1		5	Houston and MacLaren 1994: 69
1820	Ft. Resolution, HBC Moose Deer I., Great Slave L., NWT	1			1	1		3	Houston and MacLaren 1994: 69
1820	St. Mary's House (III), HBC, Peace R., Alberta	1			2	1		4	Rich 1938: 382; Smythe 1968: 268
1822	Ft. Garry, HBC, Red R., Manitoba	1		1	2	6	3	13	Wolk 1982
1823	Severn (II), HBC, Severn R., Ontario	1		1	1	7.66	1.33	12	HBCA B.198/e/6 fo. 19.
1824	Fort Pelly (I), HBC, Saskatchewan	1		1	2	3	1	8	Klimko 1983: 42-105.
1826	Kipp's Post, Columbia Fur Co., Missouri R., S. Dakota	1		1	1	2		5	Woolworth and Wood 1960: 258-266
1828	Brandon House (IV), HBC, Assiniboine R., Manitoba	1						5	Stewart 1930: 30
1829	Rocky Mountain House, HBC, N. Saskatchewan R., Alberta	1		2	1	2	1	7	Smyth 1976: 88, 90

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		Architectural Categories							
Date	**Site, Location**	**1**	**2**	**3**	**4**	**5**	**6**	**Ttl.**	**References**
1830	Ft. Colvile, HBC, Columbia R., Washington	1		1.5	2	4.5	2	11	Chance 1972: 12, 13
1830	Norway House, HBC, Manitoba	1		2	3	7		13	D. 4/125 fo. 98b-99
1830	Ft. Pitt, HBC, N. Saskatchewan R., Saskatchewan	1			1	0.5	0.5	3	Mackie, n. d., citing Post Journal
1832	Piegan Post, HBC, Bow R., Alberta	1			2	2		5	Nesbitt, 1987.
1840	Lower Fort Garry, HBC, Red R., Manitoba	1			2	5	3	11	Chism 1972.
1842	Ft. George, Union Fur Co., Missouri R., S. Dakota							6	Smith 1968; iv, 11
1845	Ft. Walla Walla, HBC, Columbia R., Washington	1		1	2	1		5	HBCA G.1/194
1845	Ft. Vancouver, HBC, Wash.	1	3	4	2	11	2	23	Hussey 1970: 260
1846	Ft. Edmonton, HBC, Saskatchewan R., Ab.	1	1		4	3	2	11	Vavasour plan 1846
1846	Ft. Ellice, HBC, Manitoba	1		1	2	3	2	9	HBCA G.1/190
1846	Jasper House (II), HBC, Athabasca R., Alberta				1	1	1	3	Kane 1968: 105, 106
1847	Ft. Colvile, HBC, Columbia R.,	1		2	3	5	8	19	Chance 1972: 16, 20, 80, 81
1853	York Factory, HBC, Hayes R., Manitoba	1		2	5	6	3	17	Smythe 1968: 80, 81; Ballantyne 1972: 137, 138
1854	Rocky Mountain House, HBC, N. Saskatchewan R., Alberta	1			2	4		7	Smyth 1976: 100
1857	Ft. Rupert, HBC, Vancouver I., B.C.	1		1	3	2	1	8	HBCA A.11/76 fo.669
1859	Fort Shepherd/Pend d'Oreille, HBC, Columbia R., B.C.	1			2	3		6	Ruggles 1991:114; Turnbull 1988: 25
1861	Ft. Anderson, HBC, Anderson R., NWT	1			2	2		5	Hohn 1963:22-29
1864	Ft. Yukon, HBC, Yukon R., Alaska	1		1	1			6	Whymper 1966: 221

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		Architectural Categories							
Date	**Site, Location**	**1**	**2**	**3**	**4**	**5**	**6**	**Ttl.**	**References**
1866	Michaelovski; Russian America Co., St. Michael's I., Alaska							5	Whymper 1966: 128
1867	Ft. Ellice, HBC, Saskatchewan	1			2	4	1	8	Cowie 1993: 183
1867	Ft.Qu'Appelle, HBC, Qu'AppelleR., Saskatchewan	1		1	2	0.5	0.5	5	Cowie 1993:203, 211-213
1869	Last Mountain House, HBC, Saskatchewan				2	1	2	5	Klimko and Hodges 1993: 21
1870	Lower Fort Garry (II), HBC, Red R., manitoba	1		3	4	12	9	29	Chism 1972; Smythe 1968: 109
1873	Ft. Dunvegan, HBC, Peace R., Alberta	1		1	3	3	4	12	HBCA G.1/283
1873	Fort William (II), HBC, L. Superior, Ontario			4	2	9	5	20	Kleinfelder and Taylor 1972
1874	Victoria Post, N. HBC, Saskatchewan R., Alberta	1		1	2	2.5	2.5	9	Forsman 1985.
1875	Fort Vermilion, HBC, Peace River, Alberta	1		2	3	3	7	16	HBCA G.1/329, G.1/281.
1875	Red River Outpost, HBC, Peace R., Alberta	1		1	2	3	2	9	HBCA G.1/281
1876	Ft. Frances, HBC, Rainy R., Ontario	1		1	1	2		5	HBCA G.7/1 p.43; G.1/283.
1876	Lac Seul, HBC, Ont.			1	1	2	1	5	HBCA G. 7/1 fo. 43
1883	Sturgeon L. Outpost, HBC, Alberta				1	2		3	HBCA D. 25/9 fos. 38, 39
1886	Cumberland House, HBC, Cumberland L., Saskatchewan			1	3	7	2	13	HBCA D.25/3, fo. 16
1887	Ft. St. John, HBC, Peace R, B.C.				2	1		3	HBCA B.189/a/3
1888	Ft. Pelly, HBC, Saskatchewan	1		1	3	3	1	9	HBCA D. 25/5 fo. 44-64; B. 159/e/5
1888	Ft. Pitt, HBC, N. Saskatchewan R., Saskatchewan	1		1	2	2	1	7	HBCA B.165/e/1; B.235/e/23b fos.293-294
1888	La Cloche, HBC, Ontario			1	3	6	3	13	HBCA B.109/e/10
1889	Lac la Biche Post, HBC, Alberta			1	2	1	4	8	HBCA B.235/e/24
1889	Fort Chipewyan, HBC, L. Athabasca, Alberta							29	HBCA B.39/e/16.

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		Architectural Categories							
Date	**Site, Location**	**1**	**2**	**3**	**4**	**5**	**6**	**Ttl.**	**References**
1889	Norway House, HBC, Manitoba	1	1	2	2	7	3	16	HBCA B.154/e/25 fo. 8
1889	Ft. Ellice (II), HBC, Manitoba	1		2	2	5		10	HBCA D. 4/125, B.63/e/2
1889	Whitefish L., HBC, Alberta				2	1	1	4	HBCA D.25/9, fo. 5o, 51
1890	Lac Seul, HBC, Ontario			1	1	2.5	1.5	6	HBCA B.107/e/7
1891	Albany, HBC, Albany R., Ontario		1	1	3	3	4	12	HBCA D.25/13, fo. 170
1891	Manitoba House, HBC, Manitoba			1	1	2	6	10	HBCA D.25/12 fo. 246; cf 9 structures as per list HBCA D.25/12 fo. 247, 248
1892	Ft. Chipewyan, HBC, L. Athabasca, Alberta			2	3	7.5	2.5	15	HBCA B.39/e/22
1892	Ft. Good Hope, HBC, Mackenzie R., NWT			1	2	2	2	7	HBCA D.25/15 fo.196,197
1892	Isle a la Crosse, HBC, Saskatchewan			2	4	3	3	12	HBCA D.25/16 fos.102, 103
1892	Long Lake Post, HBC, Ontario			1	3	2	3	9	HBCA B.117/e/6 fo.2,3
1893	Cumberland House, HBC, Cumberland L., Saskatchewan			1.5	2.5	7	2	13	HBCA D.25/17, fo. 75; D.25/17, fo. 77, 78
1893	Grand Rapids Post, HBC, Upper End, Saskatchewan R., Manitoba			0.5	1	1.5	2	5	HBCA B.285/e/2, fo. 3, 4; 8 structures/str. div'ns as per plan HBCA B.282/e/2, fo. 2
1893	Grand Rapids Post, HBC, Lower End, Saskatchewan R., Manitoba				2	3	1	6	HBCA B.285/e/2, fo. 3; HBCA B.282/e/2, fo. 2
1895	Berens R. Post,HBC, L. Winnipeg, Manitoba				1	4		5	HBCA B.16/e/5
1896	Ft. MacMurray, HBC, Athabasca R., Alberta			1	2	1		4	HBCA B.307/e/1, fo.2
1898	Canoe L., HBC, Saskatchewan				1	1		2	HBCA G.7/1 fo.19
1898	Isle a la Crosse, HBC, Saskatchewan				4	5	2	11	HBCA G.7/1 fo.19
1898	Ft. Good Hope, HBC, Mackenzie R., NWT	1			2	3	1	7	HBCA G.7/1 fo.18

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		Architectural Categories							
Date	**Site, Location**	**1**	**2**	**3**	**4**	**5**	**6**	**Ttl.**	**References**
1898	Souris R., HBC, English R. District, Saskatchewan				1	1		2	HBCA G.7/1 fo.19
1898	Whitefish L., HBC, Alberta							2	HBCA B.365/e/2
1898	The Narrows, HBC, Little Buffalo L., Saskatchewan				1	1		2	HBCA G.7/1 fo.19
1899	Sturgeon L., HBC, Ontario							2	HBCA B.107/e/8
	Column Totals	123	18.5	112	290	326	158	1167	
	Total, Columns 1-6	815							

APPENDIX 2. Table of Measured Distances from Grand Portage, and from York Factory (HBC sites only) Westwards to Inland Fur Trade Sites.

		Distance, miles and (km)			
Year	Site/Feature	French	Pedlars and NWC	HBC	References
1730	Kaministikwia/Grand Portage, L. Superior	0			
1731	Fort St. Pierre, Rainy R., Ontario	265 (426)			Hind 1971. vol. 1: 80
1732	Ft. St. Charles, Lake of the Woods, Minnesota	380 (612)			Hind 1971. vol. 1: 401, and M.F. measured distance
1734	Fort Maurepas, Lower Red River, Manitoba	657 (1058)			Hind 1971. vol. 1: 402; Champagne 1971: Fig. 2, pp. 9-11
1738	Ft. La Reine, Asiniboine R., Manitoba	759 (1222)			Burpee 1927: 445; Morton 1937: 91; 1939: 269
1741	Ft. Dauphin, MossyR., Manitoba	876 (1410)			Smythe 1968: 102, 156; Champagne 1971: 36-38; and M.F.
1741	Ft. Bourbon I, Mouth of Saskatchewan River, Manitoba	956 (1539)			Hind 1971, vol. 1: 494; and map measurement by M.F.
1743	Paskoya I, mouth of Saskatchewan at Cedar Lake, Bourbon II, Manitoba	1039 (1672)			Champagne 1971: 40-45; Mackenzie 1971: lxviii
1751	Fort La Jonquiere, Saskatchewan R., Saskatchewan	1302 (2095)			Kehoe 1978: 8; Tyrell 1934: 12
1753	Ft. a la Corne, Ft. St. Louis, Peonan Creek, Saskatchewan R., Saskatchewan	1341 (2158)			Morton 1943: 138; Tyrrell 1934: 15, 17, 231n.
1761	Grand Portage, L. Superior, Ontario		0		
1765	Lac la Pluie, Rainy Lake, forest region		265 (426)		Hind 1971. vol. 1: 80
1765	F. LeBlanc near The Pas, Saskatchewan R., forest region		1096 (1764)		Wallace 1934: 3
1766	Adhemar's Fort, Assiniboine/Red R., Plains/Parkland		754 (1213)		Masson 1889:I: 270; Coues 1897:I: 290n.; Morton 1939: 271; map measurement
1767	LeBlanc/Finlay House, Plains/Parkland, Saskatchewan R., Saskatchewan		1221 (1965)		Cocking in Burpee 1908: 101; Tyrrell 1934: 8
1767	Fort des Trembles, Plains/Parkland, Assiniboine/Red R., Manitoba		784 (1261)		Smythe 1968: 103, 121; map measurement by M.F.
1768	LeBlanc/Finlay Post, Nipawa, Plains/Parkland, Saskatchewan R., Saskatchewan		1289 (2075)		Kehoe 1978: 8; Tyrell 1934: 12

APPENDIX 2. Table of Measured Distances from Grand Portage, and from York Factory (HBC sites only) Westwards to Inland Fur Trade Sites.

		Distance, miles and (km)			
Year	**Site/Feature**	**French**	**Pedlars and NWC**	**HBC**	**References**
1773	Nameau L., post of Frobisher, Primeau; forest region, Saskatchewan		1116 (1796)		Duckworth 1990: xiii
1773	Ft. aux Trembles, Isaac's House, Plains/Parkland, Saskatchewan R., Saskatchewan		1309 (2107)		Morton 1943: 132
1773	York Factory, Hayes R./Hudson Bay, Manitoba			0	
1774	Cumberland House, forest region, Cumberland L., Saskatchewan			686 (1104)	Peel 1972: 2; Hind 1971:I: 494; II: 402; Houston 1974: 41
1774	Fort du Traite (Frog Portage), Churchill R., Saskatchewan		1297 (2071)		Smythe 1968: 227, 228; Duckworth 1990: xiv
1775	Primeau's Post, Primeau Lake, Saskatchewan		1486 (2391)		Smythe 1968: 231, 232; Duckworth 1990: xii
	Forks of the Saskatchewan River, Plains/Parkland region, Saskatchewan		1366 (2198)		Peel 1971: 3
1776	Sturgeon Fort, Plains /Parkland region, Saskatchewan R., Saskatchewan		1416 (2278)		Morton 1943: 142; Tyrrell 1934: 218n, 229, 230.
1776	Ile a la Crosse, forest region, Ile a la Crosse L., Saskatchewan		1548 (2491)		Smythe 1968: 232; Houston 1974: 113
1778	Eagle Hill, Plains/Parkland region, Saskatchewan R., Saskatchewan		1400 (2253)		Tyrrell 1934; Peel 1972
1778	Pond's Fort, forest region, Athabasca R., Alberta		1893 (3046)		Flygare 1983: 44, 45; Houston 1974: 125
1779	Hudson House, Plains/Parkland region, Saskatchewan R., Saskatchewan			1054 (1697)	Peel 1972: 3 (n.b. Distance is to Ft. Carlton)
1785	Upper Red Deer River Post, Plains/Parkland region, Saskatchewan				Smythe 1968: 102, 151; and M.F. estimate.
1786	Pine Island, Plains/Parkland region, Saskatchewan R., Saskatchewan		1674 (2694)		Peel 1972: 3 (n.b. distance is to Ft. Pitt)
1786	Manchester House, Plains/Parkland region, Saskatchewan R., Saskatchewan			1274 (2050)	Peel 1972: 3 (n.b. distance is to Ft. Pitt)
1786	Fort Resolution, Forest region, Slave R., NWT		2043 (3287)		Franklin 1971: 50; @ Slave Lake, Innis 1970: 200; Houston 1974:

APPENDIX 2. Table of Measured Distances from Grand Portage, and from York Factory (HBC sites only) Westwards to Inland Fur Trade Sites.

		Distance, miles and (km)			
Year	Site/Feature	French	Pedlars and NWC	HBC	References
1787	Fort Esperance, Plains region, Assiniboine R., Saskatchewan		963 (1550)		Smythe 1968: 104, 135; map measurement by M.F.
1788	Boyer's Post, forest region, Peace R., Alberta		2160 (3476)		Franklin 1971: 50; Houston 1974: 125;Smythe 1968: 267; and measurement by M.F.
1790	Island at entrance to Mackenzie R., forest region, NWT		2484 (3998)		Innis 1970: 201; Stevenson 1977: 76
1791	Grant's House, Assiniboine R., Saskatchewan		1044 (1680)		Smythe 1968: 104, 142; map measurement by M.F.
1792	Fort George, Plains/Parkland region, N. Saskatchewan R., Alberta		1730 (2784)		Peel 1972: 3
1792	Buckingham House, Plains/Parkland region, N. Saskatchewan R., Alberta			1330 (2140)	Peel 1972: 3
1792	Fort Fork, Plains/Parkland region, Peace R., Alberta		2389 (3845)		Houston 1974: 125; Flygare 1983: 68; and map measurement by M.F.
1793	Brandon House, Plains/Parkland region, Assiniboine R., Manitoba			880	
1795	Elbow Lake, Plains region, Assiniboine R., Saskatchewan		1071 (1723)		Smythe 1968: 104, 146; map measurement by M.F.
1795	Albany House, Plains/Parkland region, Manitoba			1289	Estimate
1795	Ft. Augustus I, Plains/Parkland region, N. Saskatchewan R., Alberta		1883 (3031)		Peel 1972: 3
1795	Fort Edmonton, Plains/Parkland region, N. Saskatchewan R., Alberta			1521 (2447)	Peel 1972: 3
1796	Livingstone's Ft. 80 mi. (128 km) below entrance to Mackenzie R., forest region, NWT		2564 (4126)		Innis 1970: 201; Smythe 1968: 285; Stevenson 1977: 76
1798	Rocky Mountain Fort, Plains/Parkland region, Peace R., B.C.		2567 (4133)		Franklin 1971: 50; Houston 1974: 125; Smythe 1968: 276; and map measurement
1799	Rocky Mountain House, Plains/Parkland region, N. Saskatchewan R., Alberta		2062 (3318)		M.F. map measurement
1799	Acton House, Plains Parkland region, N. Saskatchewan R., Alberta			1700 (2736)	M.F. map measurement

APPENDIX 2. Table of Measured Distances from Grand Portage, and from York Factory (HBC sites only) Westwards to Inland Fur Trade Sites.

		Distance, miles and (km)			
Year	Site/Feature	French	Pedlars and NWC	HBC	References
1799	Ile a la Crosse, forest region, Ile a la Crosse, Saskatchewan			1134 (1825)	Houston 1974: 41, 113; Smythe 1968: 234
1799	Bear Lake River, forest region, Mackenzie R., NWT		2962 (4767)		Franklin 1971: 50; Innis 1970: 201; Stevenson 1977: 99
1800	Chesterfield House, Plains region, Saskatchewan			1289 (2075)	Map measurement
1802	Nottingham House, forest region, L. Athabasca, Alberta			1498 (2410)	Smythe 1968: ; Houston 1974: 125
1802	Mansfield House, forest region, Peace R., Alberta			1711 (2754)	Houston 1974: 125; Flygare 1983: 77; and map measurement by M.F.
1805	Ft. Liard, forest region, Liard R., NWT		2893 (4655)		Smythe 1968:286, 287. citing Masson II:66; Rich 1938: 394; Stevenson 1977:89
1805	Ft. Good Hope, forest region, Mackenzie R., NWT		3167 (5097)		Stevenson 1977: 111
1805	Fort McLeod, forest region, McLeod Lake, B.C.		2798 (4504)		Innis 1970: 204; and M.F. map measurement
1806	Ft. St. James and Fraser Lake, forest region, B.C.		2904 (4675)		Innis 1970: 204 and M.F. map measurement
1807	Kootenae House, Columbia R., B.C.		2336 (3760)		Glover ? (DT's Narrative) xci; M.F. map measurement
1807	Fort George, forest region, Fraser R., B.C.		3025 (4868)		Innis 1970: 204 and M.F. map measurement
1809	Saleesh House		2925 (4707)		Glover ? (DT's Narrative) xcv; M.F. estimate
1811	Spokane House, Columbia R., Washington		3075 (4949)		Glover ? (DT's Narrative) xcviii; M.F. estimate
1812	Ft. George/Astoria, Oregon		3725 (5995)		Mills 1947:204,205, and map measurement
1812	Ft. Nelson, forest region, B.C.		3068 (4937)		Stevenson 1977:89
1815	Ft. Wedderburn, forest region, L. Athabasca, Alberta			1498 (2410)	Houston 1974: 125
1818	Colvile House, forest region, Peace R., Alberta			1678 (2700)	Houston 1974: 125; Flygare 1983: 78; and map measurement by M.F.
1818	St. Mary's House, Plains/Parkland region, Peace R., Alberta			1988 (3200)	Smythe 1968: 269, 270; Houston 1974: 125; Flygare 1983: 68; and map measurement by M.F.
1819	Ft. Resolution, forest region, Slave R., NWT				Smythe 1968: 282

APPENDIX 2. Table of Measured Distances from Grand Portage, and from York Factory (HBC sites only) Westwards to Inland Fur Trade Sites.

		Distance, miles and (km)			
Year	**Site/Feature**	**French**	**Pedlars and NWC**	**HBC**	**References**
1822	Ft. Simpson, forest region, Mackenzie R., NWT			2432 (3914)	Smythe 1968:
1823	Ft. Norman II, forest region, Mackenzie R., NWT			2507 (4035)	Smythe 1968: 289
1823	Ft. Good Hope II, forest region, Mackenzie R., NWT			2738 (4406)	Smythe 1968: 291
1840	Ft. McPherson, forest region, Peel R., NWT			3011 (4846)	Stevenson 1977; HBCA post summary
1851	La Pierre's House, forest region, Yukon			3100 (4989)	Whymper 1966: 220, estimate
1847	Ft. Yukon, 600 miles from LaPierre's House			3700 (5954)	Whymper 1966: 220

APPENDIX 3. Competition as Numbers of Posts Recorded Through Time in Northwestern North America.

		Numbers of Posts					
Year	**Site, Location**	**French**	**Pedlars/Ind.**	**NWC**	**HBC**	**Total**	**References**
1674	Rupert R., Quebec				1	1	Tyrrell 1931: 395
1678	Ft. Albany, Ontario				1	1	Kenyon 1970, cited in Klimko 1994: 39
1679	Kaministiquia, Lake Superior, Ontario	1				1	Smythe 1968: 56, citing Giraud 1945: 145 ff.
1680	Charlton I., NWT				1	1	Kenyon 1972, 1973, cited in Klimko 1994: 40
1682	Albany, James Bay, Ontario				1	1	Kenyon 1986: 76
1682	Ben Gillam's Fort, English/American; Nelson R., Manitoba		1			1	Tyrrell 1931: 10
1682	Port Nelson, Nelson R., Manitoba				1	1	Smythe 1968: 78
1682	Ft. Bourbon (I), Hayes R., Manitoba	1				1	Smythe 1968: 78
1683	Rainbow I., Hayes R., Manitoba	1				1	Smythe 1968: 78; Tyrrell 1931: 14
1683	Port Nelson (II), Nelson R., Manitoba				1	1	Smythe 1968: 78
1683	LaSalle's Ft. St. Louis	1				1	Hall 1991
1684	York Fort (I), Hayes R., Manitoba				1	1	Smythe 1968: 78
1684	Martiniere's Fort, French Creek, Manitoba	1				1	Smythe 1968: 78; Tyrrell 1931: 13
1864	Riviere la Manne, L. Nipigon, Ontario	1				1	Lytwyn 1986: 4
1685	Ft. Bourbon (II), Hayes R., Manitoba	1				1	Smythe 1968: 78
1697	Ft. Bourbon (III), Hayes R., Manitoba	1				1	Smythe 1968: 78
1700	Ft. Phelipeaux, Hayes R., Manitoba	1				1	Smythe 1968: 78
1702	New Severn, Severn R., Ontario				1	1	Pollock and MacLeod 1975, cited in Klimko 1994: 39
1714	York Factory (II), Hayes R., Manitoba				1	1	Smythe 1968: 78
1715	Michilimackinac, Michigan	1				1	Maxwell and Binford 1961: 10

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1717	Kaministiquia, L. Superior, Ontario	1				1	Lytwyn 1986: 5
1717	Michipicoten, L. Superior, Ontario	1				1	Lytwyn 1986: 5
1717	Nipigon, Ontario	1				1	Lytwyn 1986: 5
1717	Fort Tekamanigan, Rainy R., Ontario	1				1	Smythe 1918: 65, citing Coues 1897: I: 20n.; B. 239 a/5, 51, 52; Giraud : 152-155
1717	Ft. Churchill, Churchill R., Manitoba				1	1	Petch 1992, cited in Klimko 1994: 55; Smythe 1968: 100.
1717	Ft. Ouiatenon, Wabash R., Indiana	1				1	Tordoff 1984; Eccles 1984: 161
1730	Escabitchewan/Bordignon's Poste, English R., Ontario	1				1	Lytwyn 1986: 6
1731	Ft. St. Pierre, Rainy R., Ontario	1				1	Burpee 1927: 102; Giraud 1945: 150-170; Mackenzie 1971: lvi; Smythe 1968: 66
1732	Ft. St. Charles, Lake of the Woods, Minnesota	1				1	Burpee 1927: 103
1732	Lac Chamouchane, Ontario	1					Francis and Morantz 1983: 37
1732	Ft. Prince of Wales, Churchill R., Manitoba				1	1	Smythe 1968: 99; Hamilton 1990: 81, citing Tyrrell 1894
1734	Ft. Maurepas (I), Red R., Manitoba	1				1	McLeod 1983, cited in Klimko 1994: 54; Burpee 1927: 197, 198; Crouse 1928: IX, 3: 206-222; Smythe 1968: 108.
1737	Ft. Maurepas (II), Winnipeg R., manitoba	1				1	Burpee 1927: 198n.; Crouse 1928: IX, 3: 206-222; Gates : 107; Smythe 1968: 72
1738	Ft. Rouge, Red/Assiniboine R., Manitoba	1				1	Burpee 1927: 308, 484; Coues 1897: I: 46; Smythe 1968: 111, citing Masson 1890: I: 268
1738	Ft. la Reine, Assiniboine R., Manitoba	1				1	Brymmner 1887: clxv; Gates 1965: 110, 111; Smythe 1968: 118, citing Masson 1890: I: 270; Morton 1939: 190, Burpee 1927:

APPENDIX 3. Competition as Numbers of Posts Recorded Through Time in Northwestern North America.

		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1741	Ft. Dauphin, Lake Winnipegosis, Manitoba	1				1	Bain 1969: 263; Burpee 1927: 379, 396, 454, 485, 496; Champagne 1968: 270 ff.; 1971: 36 ff.; Smythe 1968: 156.
1741	Ft. Bourbon, Cedar Lake, Manitoba	1				1	Champagne 1968: 270, 1971: 31 ff.; Coues 1897: I: 257, 258; Smythe 1968: 168, 169
1743	Henley House, Albany R., Ontario				1	1	Julig 1981, cited in Klimko 1994: 40; Lytwyn 1986: 7
1745	Ft. Vaudreuil, Mississippi R., Iowa	1				1	Birk 1991:
1751	La Jonquiere, Saskatchewan R., Saskatchewan	1				1	Brymmner 1887: clxi-clxiii; Tyrrell 1934: 23, 24; Smythe
1751	Paskoyac (I), Saskatchewan R., Saskatchewan	1				1	Brymmner 1887: clxi; Burpee 1907: 325, 352; Coues 1897: II: 470; Rich 1967: 129; Tyrrell 1934: 109,110; Smythe 1968: 170
1752	M20, Mississippi R., Minesota	1				1	Birk 1991: 237-266
1753	Ft. St. Louis, Ft. La Corne, Saskatchewan R., Saskatchewan	1				1	Coues 1897: II: 482; Smythe 1968: 185, 186
1755	Lac Bois Blanc, Ontario	1				1	Brymmner 1887: clxi; Mackenzie 1971: liii
1755	Lac la Croix, Lake Nequaquon, Ontario	1				1	Bain 1969: 238, 239.
1755	Ottawa-Mattawa River Route, Ontario	4				4	Bain 1969: 19, 25, 26.
1755	Portage de l'Isle, Winnipeg R., Ontario	1				1	Smythe 1968: 71, citing D. Thompson Notebooks MG 19A8(2)III:151, 162
1759	Henley House, Albany R., Ontario				1	1	Julig 1981, cited in Klimko 1994: 40; Lytwyn 1986: 8
1759	Fort Severn, Severn R., Ontario				1	1	Pollock and MacLeod 1975: cited in Klimko 1994: 39
1761	Eabemet L., Ontario		1			1	Lytwyn 1986: 34
1765	Grand Portage, Lake Superior, Minnesota		1			1	Bain 1969: 234-235; Harmon : 14, 15; Mackenzie 1971: xliii, xliv

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1765	Ft. Charlotte, Pigeon R., Minnesota		1			1	Smythe 1968: 64
1766	Corry's/Oakes's Hse, Red R., Manitoba		1			1	Wallace 1954: 5; Smythe 1968: 109, citing Morton 1937: XXI: 90
1766	Adhemar's Ft., Assiniboine R., Manitoba		1			1	Coues 1897:I: 290; Masson 1889:I:270; Morton 1929:271; Smythe 1968: 118
1766	Blondishe's Ft., Assiniboine R., Manitoba		1			1	Gates 1965: 110; Wallace 1954: 6; Smythe 1968: 117, citing Masson 1890: 270
1766	Henley House (II), Albany R., Ontario				1	1	Trott 1977, Taylor 1988, cited in Klimko 1994: 40; Lytwyn 1986:
1766	N. Albany R., Ontario		3			3	Lytwyn 1986: 28
1767	Portage la Prairie, Assiniboine R., Manitoba		1			1	Smythe 1968: 120
1767	Ft. Des Trembles, Assiniboine R., Manitoba		1			1	Coues 1897: I: 292, 293; Gates 1954: 112; Smythe 1968: 121, citing Masson 1890: I: 270
1767	LeBlanc/Finlay's Pemmican Pt. House, Saskatchewan R., Saskatchewan		1			1	Morton 1939:278; Wallace 1954:7
1768	Pine Ft./Ft. Epinette, Assiniboine R., Manitoba		1			1	Tottle 1981; Hamilton 1986; Coues 1897: I: 296; Smythe 1968:
1768	LeBlanc/Finlay's House, Saskatchewan R., Saskatchewan		1			1	Tyrrell 1934: 7,8; Coues 1897: II: 479, 480; Smythe 1968: 179
1769	Paskoyac (II)/Pasquia (II), Saskatchewan R., Saskatchewan		1			1	Bain 1969: 259; Smythe 1968: 171.
1770	Frobisher's Ft., Netley Cr., Red R., Manitoba		1			1	Gates 1954: 109; Masson 1890: I: 268; Smythe 1968: 107, 108, citing Giraud 1945: 219
1771	Corry's Fort, Cedar L., Manitoba		1			1	Tyrrell 1934: 12
1772	Blondeau's House, Red Deer R., Manitoba		1			1	Tyrrell 1934: 33
1773	Ft. aux Trembles (Isaac's) House, Saskatchewan R., Saskatchewan		1			1	Wilson, Hall-Donahue and Carter 1979: 1-57; Bain 1969: 275; Smythe 1968: 182.

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		Numbers of Posts					
Year	**Site, Location**	**French**	**Pedlars/Ind.**	**NWC**	**HBC**	**Total**	**References**
1773	Frobisher/Hansome, Nameu L., Saskatchewan		1			1	Rich 1951: I: 16
1774	Cumberland House, HBC, Saskatchewan R., Saskatchewan				1	1	Ranere 1967, Meyer 1991, 1992, cited in Klimko 1994: 73; Smythe 1968: 172; Tyrrell 1934
1774	Ft. du Traite, Churchill R., Saskatchewan		1			1	Meyer and Smailes 1973, cited in Klimko 1994: 74Bain 1969: 325; Mackenzie 1971: xi, xii; Tyrrell 1934: 131, 158, 338,339; Rich 1951: I: 165; Smythe 1968: 227
1775	Amisk L. House, Frobisher-Henry, Saskatchewan		1			1	Bain 1969: 264, 265; Tyrrell 1934: 484, 455; Smythe 1968: 177
1775	Primeau's Post, English R., Saskatchewan		1			1	Tyrrell 1934: 121, 122, 353, 354; Smythe 1968: 231, 232
1776	Nipawin, Upper Posts, Saskatchewan R., Saskatchewan		3			3	Rich 1952: I: 116; Tyrrell 1934: 221 ff.; Smythe 1968: 187
1776	Sturgeon Ft. (I), N. Saskatchewan R., Saskatchewan		1			1	Barka and Barka 1976; Coues 1897: II: 487, 488; Smythe 1968: 193 citing Furniss 1943: 266-272
1776	Ile a la Crosse, Lac la Crosse, Saskatchewan		1			1	Mackenzie 1971: lxviii; Tyrrell 1934: 357; Smythe 1968: 232
1776	Lac la Pluie, Rainy L., Ontario		1			1	Lytwyn 1986: 29
1776	Michipicoten R., Ontario		2			2	Hamilton 1990: 125, citing HBCA B.86/a/29/25
1776	Pashkokogan L., Ontario		1			1	Lytwyn 1986: 30
1777	Gloucester House, Washi L., Ontario				1	1	Dawson 1969, Newton and Mountain 1976, Balmer 1979, cited in Klimko 1994: 40; Lytwyn
1777	Lac la Mort, Savant L., Ontario		1			1	Lytwyn 1986: 13
1777	Manontoye, Minitaki L., Ontario		1			1	Lytwyn 1986: 13
1777	Nashpikahagan, Winnipeg R.?, Ontario		1			1	Lytwyn 1986: 32
1777	L. Savan/Pashkokogan, Ontario		1			1	Lytwyn 1986: 17

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1778	Escabitchewan, Ontario		1			1	Lytwyn 1986: 17
1778	Ft. du Milieu, N. Saskatchewan R., Saskatchewan		1			1	Rich 1951: I: 311, 330, 331; Tyrrell 1934: 219, 220; Smythe 1968: 196
1778	Gloucester House (II), Washi L., Ontario				1	1	Dawson 1969, Newton and Mountain 1976, Balmer 1979, cited in Klimko 1994: 40; Lytwyn
1778	Hudson House, Upper, N. Saskatchewan R., Saskatchewan				1	1	Rich 1951: I: 311, 330, 331; Tyrrell 1934: 219--221; Smythe 1968: 196
1778	Lac Seul, Ontario		1			1	Lytwyn 1986: 17
1778	Montagne d'Aigle, N. Saskatchewan R., Saskatchewan		1			1	Coues 1897: II: 498, 499; Mackenzie 1971: xiii; Rich 1951: I: 298 ff.; Tyrrell 1934: 224-228, 232; Smythe 1968: 200
1778	Pond's Fort, Athabasca R., Alberta		1			1	Mackenzie 1971: xii; Tyrrell 1934: 394, 455; Smythe 1968: 250
1778	Clark's House, Sturgeon L., Ontario		1			1	Lytwyn 1986: 35
1778	Skunk's Head, ~Shikag L. outlet or Wabigoon L., Ontario		1			1	Lytwyn 1986: 17, 18
1779	Hudson House, Lower; N. Saskatchewan R., Saskatchewan				1	1	Clark 1969: 28-33; Rich 1952; Smythe 1968: 195, 196
1779	Lac des Bois, L. of the Woods, Ontario		1			1	Lytwyn 1986: 36
1779	Nipigon/Animapeg, L. Nipigon, Ontario		1			1	Lytwyn 1986: 36
1779	Ogoki R., Whitewater L, Ontario		1			1	Lytwyn 1986:34
1779	Paskokogan L., Ontario		1			1	Lytwyn 1986:36
1779	Pelican L. House, Saskatchewan		1			1	Tyrrell 1934: 336; Smythe 1968: 178.
1779	The Pigeon's House, N. Saskatchewan R., Saskatchewan		1			1	Rich 1952: II: 30, 90; Smythe 1968: 199, 200
1779	Rainy L., Ontario		2			2	Lytwyn 1986: 36
1779	Red L., Ontario		1			1	Lytwyn 1986: 36

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		Numbers of Posts					
Year	**Site, Location**	**French**	**Pedlars/Ind.**	**NWC**	**HBC**	**Total**	**References**
1779	Sturgeon L. Outpost/Sacaheggan, Ontario				1	1	HBCA B.211/a/1/ fo. 12d
1779	Tikameg, between Nipigon and Henley House, Ontario		1			1	Lytwyn 1986: 36
1780	Sturgeon Ft. (II), Saskatchewan R., Saskatchewan		1			1	Rich 1952: II: 162, 164; Smythe 1968: 193
1780	Ft. Providence (Holmes's) House, on island in N. Saskatchewan R., Saskatchewan		1			1	Coues 1897: II: 487; Rich 1952: II: 162, 164; Tyrrell 1934: 220; Smythe 1968: 193.
1781	Ft. Esperance, Saskatchewan			1		1	Chism and Smythe 1969, cited in Klimko 1994: 72
1782	Henley House, Albany R., Ontario				1	1	Lytwyn 1986: 43
1782	Lac la Ronge, Saskatchewan		1			1	Davidson 1918: 302; Mackenzie 1971: ilxxvii; Smythe 1968: 229.
1782	Cold L. House, Beaver R., Alberta		1			1	MacGregor 1966: 115
1784	Crownest L., Springpole L., Ontario		1			1	Lytwyn 1986: 46
1784	Martin's Fall, Ontario				1	1	Lytwyn 1986: 45; Newton and Mountain1975
1784	Umfreville's Post, N. Saskatchewan R., Saskatchewan			1		1	Coues 1897: II: 504, 505; Tyrrell 1934: 585; Smythe 1968: 203, citing Umfreville 1790: 146-149
1785	Lac la Pluie, Rainy R., Ontario			1		1	HBCA PAC B. 105 a/1, 6; Gates 1954: 104, 195-241; Mackenzie 1971: lvi; Smythe 1968: 66, 67
1785	Pine Ft./Epinette, Assiniboine R., Manitoba		1			1	Tottle 1981; Hamilton 1986; Coues 1897: I: 296; Gates 1954: 112-114; Smythe 1968: 122-124
1785	Pine Is. Ft./Ft. de l'Isle, N. Saskatchewan R., Saskatchewan			1		1	Ranere 1967; Coues 1897: II: 503; Morton 1929: 4, 14; Tyrrell 1934: 585; Smythe 1968: 202.
1785	Upper Red Deer R. Post, Saskatchewan		1			1	Mackenzie 1971: lxv; Smythe 1968: 151.
1785	Skunk's head L., Shikag L., Ontario		1			1	Lytwyn 1986: 51

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1786	Cat L., Ontario		1			1	Lytwyn 1986: 54
1786	Ft. des Isles, (Gregory, McLeod &Co.), S. Saskatchewan R.		1			1	Coues 1897: II: 531; Morton 1929: 13-15; Smythe 1968: 189, 190, citing Morton 1937: 98
1786	Ft. des Isles, S. Saskatchewan R., Saskatchewan			1		1	Coues 1897: II: 531; Morton 1929: 13-15; Smythe 1968: 189, 190, citing Morton 1937: 98
1786	Manchester House, N. Saskatchewan R., Saskatchewan				1	1	Coues 1897: II: 19; Morton 1929: 4, 13-17; Masson 1890: II: 19, Tyrrell 1934: 585; Smythe 1968:
1786	Muskigogamy/Osnaburgh House, L. St. Joseph, Ontario					1	Lytwyn 1986: 53; Cameron in Masson 1890:I:244; Smith 1978 cited in Klimko 1994: 40
1786	S. Branch House, S. Saskatchewan R., Saskatchewan				1	1	Dyck 1978, cited in klimko 1994: 73; Coues 1897: II: 531; Morton 1929: 13-15; Smythe 1968: 190.
1786	Lac des Serpents, Churchill R., Saskatchewan			1		1	Smythe 1968: 230, 231, citing Masson 1889: !: 17, 32
1786	Lac des Serpents, Gregory, McLeod & Co., Churchill R., Saskatchewan		1			1	Smythe 1968: 230, 231, citing Masson 1889: I: 17, 32
1786	Slave Ft./Fort Providence, L. Leroux, N.W.T		1			1	Masson 1890:I:94; Perry and Clark 1971: 11; cf. Smythe 1968:
1787	Ft. Esperance, Assiniboine R., Saskatchewan			1		1	Masson 1889: I: 274, 275; 1890: II: 36; Gates 1954: 115; Smythe 1968:135, 136
1787	Ross's House, Gregory, McLeod & Co., Athabasca R., Alberta		1			1	Tyrrell 1934: 414-417, 512
1787	Swan R. Ft., Manitoba			1		1	Mackenzie 1971: lxv; Smythe 1968: 153
1787	La Loche House, Lac la Loche, Saskatchewan			1		1	Steer 1977: 263.
1788	Cat L., Ontario				1	1	Lytwyn 1986: 57
1788	York Factory (III), Hayes R., Manitoba				1	1	Smythe 1968: 78

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1788	Ft. Chipewyan (I), Lake Athabasca, Alberta			1		1	Mackenzie 1971: lxxxvii, lxxxviii, 119; Masson 1889: I: 27; II: 386, 387; Tyrrell 1934: 397. 398; Smythe 1968: 248, 249
1788	Fort of the Forks, Clearwater R., Alberta			1		1	Forsman 1980; Mackenzie 1971: lxxxvii; Tyrrell 1934: 389; Smythe 1968: 252
1788	Boyer's Post, Peace R., Alberta			1		1	Mackenzie 1971: 124; Smythe 1968: 262
1789	Chavaudrill's Post, Cat L., Ontario		1			1	Lytwyn 1986: 58
1789	Ft. Providence, Great Slave L., N.W.T.			1		1	Perry and Clark 1971
1789	Portage de l'isle, XY Co., Winnipeg R., Ontario		1			1	Coues 1897: I: 28; Gates 1954: 105; Mackenzie 1971: lix, Smythe 1968: 67
1789	Thorburn's Post, Saskatchewan R., Saskatchewan			1		1	Klimko 1990; Smythe 1968: 180, citing Morton 1944: 126, 128
1789	Rat R. Fort, 3 Pt. L., Manitoba			1		1	Oliver 1915: II: 700, 701; Smythe 1968: 94
1789	Red L. Post, Ontario		1			1	Lytwyn 1986: 58
1789	Green L. House (I), Saskatchewan			1		1	Masson 1889: I: 32; Tyrrell 1934: 358; Smythe 1968: 235.
1789	Lac d' Orignal, Moose Lake, Alberta			1		1	Shaw to Mackenzie corres. NAC MG 19 C1; Masson 1889: I: 30 ff.; Tyrrell 1934: 358; Smythe 1968:
1790	Swan R. House , Manitoba				1	1	HBCA B.213/a/1; Smythe 1968: 154, citing Harmon 1911: 30, 48; Morton 1939: 435; Tyrrell 1916:
1790	Red L. House, Ontario				1	1	Lytwyn 1986: 63
1790	Red L. Post, Ontario		1			1	Lytwyn 1986: 61
1790	Red Lake Post (new location), Ontario				1	1	HBCA B.177/a/1 fo. 17d
1790	Montagne a la Bosse, Manitoba			1		1	Smythe 1968: 132, citing Harmon 1911: 100
1790	McKay's House, Paint Lake, Manitoba			1		1	Smith 1991, cited in Klimko 1994: 55; Tyrrell 1934: 482, 483; Smythe 1968: 93

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1790	Split L. House, Manitoba				1	1	Oliver 1915: II: 700, 701; Rich 1938: 424; Smythe 1968: 93
1790	Alexander Fraser's House, McIntosh Lake, Saskatchewan			1		1	Tyrrell 1934: 479, 480; Smythe 1968: 230; Smythe 1968: 230.
1790	La Cloche, Ontario			1		1	HBCA Site Summary
1790	Lac des Boeufs, Peter Pond L., Saskatchewan			1		1	McDonald 1872: 9; Tyrrell 1934: 358, 474; Smythe 1968: 239.
1790	La Loche House (II), Lac la Loche, Saskatchewan			1		1	Steer 1977: 263.
1790	Longlac Post, Ontario				1	1	Dawson 1969: 4-6; Klimko 1994: 40 citing Balmer 1970
1790	Longlac Post, Ontario			1		1	Dawson 1963, 1964, cited in Klimko 1994: 40
1790	McLeod's Ft., Peace R., Ontario			1		1	Masson 1890: II: 386; Mackenzie 1971: 125,126; Wallace 1929: 27-29; Smythe 1968: 267
1790	Lac la Martre, N.W.T.			1		1	Masson 1889: I: 94,95; Smythe 1968: 284.
1791	Ft. Frances/la Pluie, Rainy Lake, Ontario				1	1	HBCA PAC G. 7/1, p. 43.; Rich 1938: 418; Oliver 1915: II: 689; Smythe 1968: 68
1791	Chatham House, Wintering Lake, Manitoba				1	1	Tyrrell 1916: lxvi; 1934: 55; Smythe 1968: 92
1791	Grant's House, Assiniboine R., Saskatchewan			1		1	Masson 1889: I: 275; Morton 1942: xxxvi; Smythe 1968: 142.
1791	Hungry Hall, N. Saskatchewan R., Saskatchewan			1		1	Coues 1897: II: 477,479; Smythe 1968: 178, 179
1791	La la Poule d'Eaux/Waterhen L., Saskatchewan			1		1	NAC MG 19 C1 5; Smythe 1968: 235.
1791	Riviere Tremblante/Grant's House, Assiniboine R.			1		1	Mackie 1968; Masson 1889: I: 275; Morton 1942: xxxvi: 102,103; Smythe 1968: 142
1791	Slave Ft. (II), Great Slave L., N.W.T.			1		1	Tyrrell 1934: 414-417, 512; Smythe 1968: 281.
1791	White's Hse, Nameu L., Saskatchewan		1			1	Tyrrell 1934: 190, 485, 486; Smythe 1968: 176

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1792	Bas de la Riviere, Winnipeg R., Manitoba			1		1	Gates 1954: 107; Smythe 1968: 73; Coues 1897: I: 34-36.
1792	Bad L. Post, Bloodvein R., Manitoba/Ontario		1			1	Lytwyn 1986: 69
1792	Bad L. Post, Bloodvein R., Manitoba/Ontario				1	1	Lytwyn 1986: 69
1792	Cat L., Ontario		1			1	Lytwyn 1986: 69
1792	Cat L., Ontario				1	1	Lytwyn 1986: 69
1792	Crownest L., Ontario		1			1	Lytwyn 1986: 69
1792	Escabitchewan House, Maynard Falls, Ontario				1	1	Lytwyn 1986: 71
1792	L. St. Joseph, Ontario		1			1	Lytwyn 1986: 72
1792	Nipigon House, Ombibaka Bay, Ontario				1	1	Lytwyn 1986: 72
1792	Rapid R. Houses, Saskatchewan		1	1		2	Tyrrell 1934: 341; Smythe 1968: 228.
1792	Sipiwesk L House, Manitoba				1	1	Tyrrell 1916: lxvi; Smythe 1968:
1792	Ft. George, N. Saskatchewan R., Alberta			1		1	Kidd 1970; Losey, Pyszczyk et al. 1980; Morton 1929; Smythe 1968: 207
1792	Buckingham House, Saskatchewan R., Alberta				1	1	HBCA B.24/a/1-6; Nicks 1969; Tyrrell 1934: 587, 588; Smythe 1968: 208.
1792	Reindeer R. Houses, Saskatchewan			2		2	NAC MG 19 C1 5; Tyrrell 1934: 482, 483; Smythe 1968: 225, 226.
1792	Reindeer R. House, Saskatchewan			1		1	Smythe 1968: 225, 226.
1792	Aspin House, Peace R., Alberta			1		1	Mackenzie 1971: 125 ff., Wallace 1929: 54; Smythe 1968: 264.
1792	Fort Fork, Peace R., Alberta			1		1	Mackenzie 1971: 131 ff., 151; Masson 1890: II: 386; Rich 1938: 419, 420; Smythe 1968: 270
1793	Ft. Alexander, Winnipeg R., Manitoba				1	1	Coues 1897: I: 34-36; Rich 1959: II: 182; Smythe 1968: 73, 74.
1793	Ft. Assiniboine, Assiniboine R., Manitoba			1		1	Coues 1897: I: 297, 298; Gates 1954: 114, 115; Masson 1889: I: 272; Stewart 1930: 19, 37, 38; Smythe 1968: 124; cf. Hamilton 1990: 121 gives 1801 for

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1793	Ft. Bourbon, Cedar L., Manitoba			1		1	Mackenzie 1971: lxviii; Smythe 1968: 169
1793	Ft. Souris, XY, Assiniboine R., Manitoba		1			1	Gates 1954: 114, 115; Smythe 1968: 125.
1793	Baldwin's House, Pukatawagan L., Churchill R., Manitoba		1			1	Smythe 1968: 98.
1793	Bloodvein R., mouth of, Manitoba		1			1	Lytwyn 1986: 74
1793	Bloodvein R., mouth of, Manitoba				1	1	Lytwyn 1986: 76
1793	Brandon Hse (I), Assiniboine R., Manitoba				1	1	Hamilton 1990: 101, 103Coues 1897: I: 297, 298; Smythe 1968:
1793	Burntwood L. House, Burntwood R., Manitoba			1		1	Smythe 1968: 95., citing D. Thompson's Notebook NAC MG 19 a8 (2) II 10, 36
1793	D. Grant's House, Upper Nipawin, Saskatchewan R., Saskatchewan		1			1	Klimko: 1989; Morton 1929; Wallace 1934: 449, 450; Smythe 1968: 188.
1793	Great L. Post, Mac Dowell L., Ontario		1			1	Lytwyn 1986: 74
1793	Eagle L., Ontario		1			1	Lytwyn 1986: 73
1793	Marlboro House, Assiniboine R., Saskatchewan				1	1	HBCA B.230/a/1; Smythe 1968: 142,143, citing Masson 1889: I:
1793	McLeod's House, Saskatchewan R., Saskatchewan			1		1	Klimko 1989; Smythe 1968: 182
1793	D. Grant's/Porter's House, Lower Nipawin, Saskatchewan R., Saskatchewan		1			1	Smythe 1968:182
1793	Nipigon House, Wabinosh Bay, Ontario				1	1	Lytwyn 1986: 72
1793	Pelican L. House, Paint L., Manitoba				1	1	Smythe 1968: 95, citing D. Thompson's Notebooks NAC MG 19 A 8 (@) II 10 and MG 19 A 8 (2) III 17
1793	Portage de l'Isle, Winnipeg R., Ontario		1			1	Smythe 1968: 71: Rich 1958-59: II: 179, 180; Lytwyn 1986: 73

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1793	Portage de l'Isle, Winnipeg R., Ontario				1	1	Smythe 1968: 71: Rich 1958-59: II: 179, 180; Lytwyn 1986: 73
1793	Sand L. Post, Sandy L., Ontario		1			1	Lytwyn 1986: 69
1793	Wappiscow's (White's) House, Churchill R., Manitoba		1			1	Smythe 1968: 99.
1793	White's House, Reed L., Manitoba		1			1	Smythe 1968: 94; NAC MG19 A8 (2), II, 9.
1794	Cumberland Ft., Cumberland L., Saskatchewan			1		1	Coues 1897: II: 475; Morton 1929: 12; Tyrrell 1934: 115; Smythe 1968: 174.
1794	Portage la Prairie, Assiniboine R., Manitoba			1		1	Gates 1954: 111; Wallace 1954: 5; Smythe 1968: 120, citing Harmon : 109; Coues 1897: I: 291;
1794	Portage la Prairie, Assiniboine R., Manitoba				1	1	Smythe 1968: 120
1794	Sandy L., Minnesota			1		1	Hart 1926: 318-321
1794	Ft. St. Louis, Saskatchewan R., Saskatchewan			1		1	Coues 1897: II: 482-484; Morton 1929: 16, 18, 39, 40; Smythe 1968: 189.
1794	Sturgeon R., Grant, N. Saskatchewan R., Saskatchewan		1			1	Smythe 1968: 195.
1794	Sturgeon R., XY, N. Saskatchewan R., Saskatchewan		1			1	Smythe 1968: 195.
1794	Sturgeon R., N. Saskatchewan R.,			1		1	Smythe 1968: 195.
1794	Reed L. House, Grass R., Manitoba				1	1	Tyrrell 1916: lxx, lxxxv; Smythe 1968: 94
1794	Ft. Resolution, Great Slave L., N.W.T.			1		1	Tyrrell 1934: 512; Houston 1974: 130; Smythe 1968: 282
1794	Rock Depot, Hayes R., Manitoba				1	1	Tyrrell 1934: 588; Smythe 1968: 83.
1794	Rocky Mountain Ft., Peace R., B.C.			1		1	Hamilton 1990: 118; Smythe 1968: 276 (gives 1800-1803)

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1794	Nelson House (Churchill outpost), Nelson L., Manitoba				1	1	Smythe 1968: 97
1794	Rainy R. Posts, Rainy R., Ontario				2	2	Coues :I: 21, 22; Rich 1958-59: I: 180 ff.; Smythe 1968: 69, citing NAC MG19 A8 (2), III, 160 (DT Notebooks)
1794	Riviere la Coquille, Assiniboine R., Manitoba		1			1	Masson 1889:I: 275, 292; Morton 1929: 58; Smythe 1968: 141, Morton 1939: 434, 436
1794	Somerset House, Swan R., Manitoba				1	1	Rich 1959: II: 177, 183; Johnson 1967:xxxvi, Smythe 1968: 155, citing Morton 1939: 435
1794	Slave Ft. (III), Great Slave L., N.W.T.			1		1	Tyrrell 1934: 512; Franklin 1823: 198, 199; Smythe 1968: 282
1794	Weijack L., mouth of Fisher R., Manitoba		1			1	Lytwyn 1986: 76
1795	Albany House (I), Assiniboine R., Saskatchewan				1	1	Smythe 1968: 145, citing D. Thompson Notebook NAC MG 19 A8 (2) 3:172
1795	Ft. Alexandria, Assiniboine R., Saskatchewan			1		1	Mackie 1968, cited in Klimko 1994, 73; Smythe 1968: 147, citing Gates 1954: 178
1795	Ash House, Souris R., Manitoba			1		1	Hems 1986, Nieuwhof 1990, cited in Klimko 1994: 55; Coues 1897: I: 305; Smythe 1968: 130, citing Tyrrell 1916: 213
1795	Belleau's Post, Saskatchewan		1				Clark 1969, cited in Klimko 1994:
1795	Blondeau's Hse, Namew L., Saskatchewan		1			1	Smythe 1968: 176.
1795	Carlton/New Carlton/Charlton House, Assiniboine R.,				1	1	HBCA B.28/a/1; Smythe 1968: 148, citing Morton 1942: 107, 108
1795	Carlton House (I), Saskatchewan R., Saskatchewan				1	1	HBCA B.60/a/1; Tyrrell 1934: 21, 22; Smythe 1968: 187
1795	Carlton House, Pukatawagan L., Manitoba				1	1	Johnson 1967:xxxn.

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1795	Duck Portage House, Churchill R., Manitoba				1	1	Smythe 1968: 99, citing NAC MG 19 C1(4)3; MG 19 A8 (2) 3
1795	Elbow L. Post, Upper Assiniboine R.,			1		1	Smythe 1968: 146, 147, citing Morton 1942: 108, 109
1795	Elbow L. Post, P. Grant, Upper Assiniboine R., Saskatchewan		1			1	Smythe 1968: 146, 147, citing Morton 1942: 108, 109
1795	Fairford House, Reindeer L., Saskatchewan				1	1	Meyer and Smailes 1974, cited in Klimko 1994: 74; Smythe 1968:
1795	Fairford R., Rheaume and Laviolette, Manitoba		1			1	Lytwyn 1986: 81
1795	Fly L., Whiteloon L., Ontario		1			1	Lytwyn 1986: 78
1795	Ft. Augustus (I),N. Saskatchewan R., Alberta			1		1	Kidd 1987; Smythe 1968: 212.
1795	Ft. Edmonton (I), N. Saskatchewan R., Alberta				1	1	Kidd 1987; Johnson 1967; Smythe 1968: 212
1795	Ft. Hibernia, Saskatchewan				1	1	HBCA B.28/a/1; B.159/a/2
1795	Ft. St. Louis(Nepewan), Saskatchewan R., Saskatchewan			1		1	Klimko 1985, cited in Klimko 1994: 73; (Nepewan in HBCA B.239/b/56 fo.18)
1795	Ft. Suspense, mouth of Dauphin R., Manitoba				1	1	Lytwyn 1986: 81
1795	Jack Head House, Manitoba				1	1	Lytwyn 1986: 80, 81
1795	Messiur's Post, head of Severn R., Ontario		1				Lytwyn 1986: 78
1795	Partridge Crop L., Manitoba		1			1	Lytwyn 1986: 81
1795	Pt. au Foutre, Winnipeg R., Manitoba			1		1	Lytwyn 1986: 80
1795	Pt. au Foutre, Winnipeg R., Manitoba		1			1	Lytwyn 1986: 80
1795	Sand L., Sandy L., Ontario		1			1	Lytwyn 1986: 78
1795	Wegg's House, Setting L., Manitoba				1	1	Smith 1988: 19
1796	Bedford House, Reindeer L., Saskatchewan				1	1	Tyrrell 1916: lxxxv, 153; Smythe 1968: 226, 227, citing Davidson 1918: 302, Rich 1918: 203
1796	Big I. Post, Black I., Manitoba			1		1	Lytwyn 1986: 90

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Year	Site, Location	Numbers of Posts					References
		French	Pedlars/Ind.	NWC	HBC	Total	
1796	Burntwood L. House, Manitoba				1	1	HBCA B.88/a
1796	Cold L. Post, Beaver R., Alberta			1		1	HBCA B.104/a/1
1796	Deer L. Post, 40 mi. west of Whiteloon L., Ontario			1		1	Lytwyn 1986: 89
1796	Eagle L. Post, Beren's R., Ontario			1		1	Lytwyn 1986: 89
1796	Eagle L. House, Beren's R., Ontario				1	1	Lytwyn 1986: 89
1796	Fort Providence, Great Slave L., N.W.T		1			1	Smythe 1968: 281
1796	Fly L., Whiteloon L., Ontario				1	1	Lytwyn 1986: 89
1796	Horse L., Ontario			1		1	Lytwyn 1986: 89
1796	Jack(fish) R., Gunisao R., Manitoba				1	1	Lytwyn 1986: 90
1796	Livingston's Ft., Mackenzie R., N.W.T.			1		1	Masson 1889: I: 95; Smythe 1968: 285.
1796	L. Minnitaki, Ontario			1		1	Lytwyn 1986: 89
1796	Mammamattawa, Ontario				1	1	Pollock 1975, cited in Klimko 1994: 39
1796	MacDonell's House/La Souris II, Assiniboine R., Manitoba		1			1	Hamilton 1990: 103, citing Carter 1980: 74; but cf. Ft. Assiniboine
1796	Nipigon, Ontario			1		1	Lytwyn 1986: 78
1796	Nipigon, Solomon and Clark, Ontario		1			1	Lytwyn 1986: 78
1796	Post Doubtful, Black I., Manitoba			1		1	Lytwyn 1986: 90
1796	Rat R. House, Red R., Manitoba			1		1	Coues 1897: I: 60, 61; Wallace 1934: 432; Smythe 1968: 115, citing D. Thompson Notebook NAC MG 19 A8(2)V/53
1796	Snake Creek Post, Upper Assiniboine R., Saskatchewan			1		1	Smythe 1968: 155, citing D. Thompson Notebook NAC MG A8(2)3/171/V/6
1796	Deer L. House, 40 mi. west of Whiteloon L., Ontario				1	1	Lytwyn 1986: 91

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		Numbers of Posts					
Year	**Site, Location**	**French**	**Pedlars/Ind.**	**NWC**	**HBC**	**Total**	**References**
1797	Cadotte's Post, Red L. R., Clearwater R., Minnesota			1		1	Hickerson 1959: 266
1797	Carp R. Post, Ontario			1		1	Lytwyn 1986: 91
1797	Chaboillez' Ft., North Dakota			1		1	Hickerson 1959
1797	Ft. Dauphin (II), Valley R., Manitoba			1		1	Tyrrell 1916: lxxii, lxxiii; Smythe 1968: 157
1797	Jack R., Manitoba				1	1	Johnson 1967, citing HBCA B.239/d/113, 115, 117; Smythe 1968: 86, 87
1797	Lac la Ronge, Saskatchewan				1	1	Rich 1938: 418; Fleming 1940: 254; Smythe 1968: 229
1797	Latour's House, Dauphin R., Manitoba			1		1	Smythe 1968: 158, citing D. Thompson Notebook NAC MG 19 A8 (2)III: 167
1797	Doubtful Post, Lake Manitoba, Manitoba				1	1	HBCA B.22/a/5 fo. 25d-26; B.53/e/1-5
1797	Manitoobar House, the Narrows, L. Winnipeg, Manitoba				1	1	Lytwyn 1986: 92
1797	Roy's Post, NWC, Red R., N. Dakota			1		1	Hickerson 1959: 266
1797	Split Lake House, Manitoba				1	1	Oliver 1915: II: 700, 701; Rich 1938: 424; Smythe 1968: 93
1797	Portage de l'isle, Winnipeg R., Ontario			1		1	Coues 1897: I: 28; Gates 1954: 105; Mackenzie 1971: lix, Smythe 1968: 67
1797	Portage de l'isle, Winnipeg R., Ontario				1	1	Coues 1897: I: 28; Gates 1954: 105; Mackenzie 1971: lix, Smythe 1968: 67
1797	Rapid R/Stanley, Churchill R., Saskatchewan				1	1	Smythe 1968:228
1797	Lower Red Deer R. Post, Saskatchewan			1		1	Tyrrell 1916: 196; Mackenzie 1971: lxv; Smythe 1968: 152, citing D. Thompson Notebook NAC MG 19 A8 (2) III/170
1797	White Fishing Place, White Claw L., Ontario			1		1	Lytwyn 1986: 94

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1798	Duck L. House, Hudwin L., Ontario				1	1	Lytwyn 1986: 94
1798	Grand Marais, Peace R., Alberta			1		1	Masson 1890: II: 27; Wallace 1929: 42-44, 54; Smythe 1968: 260, citing D. Thompson Notebooks NAC MG 19 A8 (2)
1798	Red Deer Lake, NWC; Lac la Biche, Alberta			1		1	Tyrrell 1916: 304, 305; Smythe 1968: 252, 253, citing D. Thompson Notebook NAC MG 19 A8 (2) V/160 f.
1798	Oxford House, Manitoba				1	1	Wheeler 1978, Hanks 1979, cited in Klimko 1994: 54; Rich 1938: 422; Smythe 1968: 86; Lytwyn
1798	Sandy L. House, Ontario				1	1	Lytwyn 1986: 94
1798	Setting R., Manitoba			1		1	HBCA PAM B. 197/a/1
1798	Rocky Mtn Ft., Peace R.,			1		1	Smythe 1968: 276.
1798	Ft. Vermilion (I), Peace R., Alberta			1		1	McDonald 1872: 14; Masson 1889: I: 115; 1890: II: 391; Wallace 1929: 55, 62; Rich 1938: 425; Smythe 1968: 264, 265, citing D. Thompson Notebooks NAC MG 19 A8 (2) VI/224;
1799	Acton House, N. Saskatchewan R., Alberta				1	1	Noble 1973; Smythe 1968: 217
1799	Albany Hse (II)/Old Glasgow House, Assiniboine R., Saskatchewan				1	1	Gates 1954: 121-185; Smythe 1968: 146, citing Morton 1942; Harmon 1911: 39
1799	Anacootaugan R. House, Manigotogan R., Manitoba				1	1	Lytwyn 1986: 96
1799	Dog L. House, Manitoba			1		1	Coues 1897: I: 259, 267, 281; Smythe 1968: 160
1799	Essex House, Green L., Saskatchewan				1	1	Smythe 1968: 236.
1799	Ft. de l'Isle (II), N. Saskatchewan R., Alberta			1		1	Masson 1890: II: 23 f.; Morton 1929: Appendix: 4, 6, 7; Tyrrell 1916: lxxix, lxxxviii; 1934: 97; Smythe 1968: 210, citing D. Thompson Notebooks NAC MG 19 A8 (2) V; VI/143

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1799	Ft. de l'Isle (II), XY Co., N. Saskatchewan R., Alberta		1			1	Masson 1890: II: 23 f.; Morton 1929: Appendix: 4, 6, 7; Tyrrell 1916: lxxix, lxxxviii; 1934: 97; Smythe 1968: 210, citing D. Thompson Notebooks NAC MG 19 A8 (2) V; VI/143
1799	Ft. Bolsover, Meadow L., Saskatchewan				1	1	HBCA B. 20/a/1; Smythe 1968: 237, citing D. Thompson Notebook NAC MG 19 A8 (2)
1799	Green L. House (II), Saskatchewan			1		1	Masson 1890: II: 29; Smythe 1968: 235, citing D. Thompson Notebook NAC MG 19 A8(2)
1799	Essex House, Green L., Saslatchewan				1	1	Rich 1938: 41; 6; Rich 1939: 231; Smythe 1968: 235.
1799	Greenwich House, Lac la Biche, Alberta				1	1	HBCA PAM B.104/a/1; Smythe 1968: 253, citing D. Thompson Notebook NAC MG 19 A8 (2) V/292 f.
1799	Ile a la Crosse, Saskatchewan				1	1	Rich 1939: 67; Smythe 1968: 234.
1799	Setting R., N. Saskatchewan R., Saskatchewan				1	1	Johnson 1967, citing HBCA B.239/d/117; B.197/a/1
1799	Somerset House, Turtle Creek, Saskatchewan				1	1	HBCA B. 204/a/1
1799	Lac la Biche Post, Alberta				1	1	HBCA B. 104/a/1
1799	Upper Terre Blanche, N. Saskatchewan R., Alberta			1		1	Coues 1897: II: 633, 741, 742; Smythe 1968: 215, citing D. Thompson Notebook NAC MG 19A8 (2) VI/122
1799	Nelson House, N. Saskatchewan R., Alberta				1	1	Coues 1897: II: 742; Rich 1938: 415; Johnson 1967: 214, 215, 219; Smythe 1968: 215, citing D. Thompson Notebook NAC MG 19A8 (2) VI/122
1799	Rocky Mountain House (I), N. Saskatchewan R., Alberta			1		1	Steer and Rogers 1978; Smythe 1968: 217, 218

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1799	Lesser Slave L., east and west sites, Alberta			2		2	Rich 1938: 419; Smythe 1968: 253, 254, citing Dempsey 1962: 2, MacGregor 1966: 121, 122, D. Thompson Notebook NAC MG 19 A8 (2) VI/203
1799	L. Claire, Alberta			1		1	Wallace 1929: 57; Smythe 1968: 259, citing NAC MG 19 C1/6
1799	Wentzel's Post, Peace R., Alberta			1		1	Masson 1890: II: 390, 391; Smythe 1968: 261, citing McDonald 1970: 13, D. Thompson Notebook NAC MG 19 A8(2)
1799	Whitemud R. House, Riding Mountain, Manitoba			1		1	Coues 1897: I: 208; Smythe 1968: 160, 161
1799	Whitemud R. House, T. Assoc., Riding Mountain, Manitoba		1			1	Smythe 1968: 160,161
1800	Bear L. Ft., Great Bear L., N.W.T.			1		1	Masson 1890: II: 100; Smythe 1968: 290, citing Stager 1962: 39
1800	Bird Mountain House, Swan R., Manitoba			1		1	Fleming 1940: 78; Grant 1911: 30, 32, 56 ff., Morton 1939: 435; Smythe 1968: 154
1800	Broken R. Post, mouth of Rice R., Man/Ont				1	1	Lytwyn 1986: 100
1800	Broken R. House, mouth of Rice R., Man/Ont			1		1	Lytwyn 1986: 100
1800	Chesterfield House, XY Co., S. Saskatchewan R., Alberta/Sask.		1			1	Fleming 1940; Johnson 1967; Masson 1890: II: 30 f.; Tyrrell 1916: 188; Palliser 1863: 55; Smythe 1968: 221, 222
1800	Chesterfield House, S. Saskatchewan R., Alberta/Sask.			1		1	Fleming 1940; Johnson 1967; Masson 1890: II: 30 f.; Tyrrell 1916: 188; Palliser 1863: 55; Smythe 1968: 221, 222
1800	Chesterfield House, S. Saskatchewan R., Alberta/Sask.				1	1	Fleming 1940; Johnson 1967; Masson 1890: II: 30 f.; Tyrrell 1916: 188; Palliser 1863: 55; Smythe 1968: 221, 222
1800	Cross L. House, Manitoba			1		1	Smythe 1968: 91.

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1800	Ft. Castor, ~XY/NWC, Mackenzie R., N.W.T.			1		1	Smythe 1968: 289, citing Stager 1962: 40
1800	Ft. Chipewyan (II), L. Athabasca, Alberta			1		1	Smythe 1968: 244-247
1800	Island Fort, N. Saskatchewan R., Alberta				1	1	Johnson 1967, citing HBCA B.239/d/123, 124; Tyrrell 1916: lxxix, lxxxviii; 1934: 97; Smythe 1968: 210, 211, citing D. Thompson Notebook NAC MG 19 A8 (2) VI/143; HBCA B.92/a/1
1800	Ft. George, ~XY/HBC, Great Slave L., N.W.T.			1		1	Smythe 1968: 284, 285, citing Stager 1962: 40
1800	Hair Hills, Pembina R., Manitoba			1		1	Coues 1897: I; Smythe 1968: 116, 117
1800	Island L. Post, Manitoba			1		1	Lytwyn 1986: 99
1800	Island L. House, Manitoba				1	1	Lytwyn 1986: 99
1800	Lower Winnipeg R., XY, Manitoba		1			1	Lytwyn 1986: 100
1800	Lower Winnipeg R., Manitoba				1	1	Gates 1954: 107
1800	Nelson House, Nelson R., Manitoba				1	1	Merk 1931: 9; Rich 1938: 420; Tyrrell 1916: lxxxiv; Smythe 1968: 97
1800	Park R. Post, NWC, Red R., N. Dakota			1		1	Gough 1988
1800	Roseau R. House, Red R., Manitoba			1		1	Coues 1897: I: Chapter 3; Smythe 1968: 116.
1800	Sandy Narrows House, Stout L., Ontario				1	1	Lytwyn 1986: 99, 104
1800	Succar L. Post, Red Sucker L., Manitoba		1			1	Lytwyn 1986: 99
1800	Turtle Ft., Canadian, N. Saskatchewan R., Saskatchewan		1			1	Coues 1897: II: 501; Morton 1929: xl; Tyrrell 1916: lxxix, 320 f.; Smythe 1968: 201, 202, citing Stewart 1936: 301
1801	Carlton House (II), N. Saskatchewan R., Saskatchewan				1	1	HBCA B.239/b/72, B.39/a/2

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1801	Ft. Augustus (II), N. Saskatchewan R., Alberta			1		1	Coues 1897: II: 560-602; Smythe 1968: 213, citing Tyrrell 1916: 432, 433 and cites Tyrrell's note as almost entirely incorrect
1801	Ft. Edmonton (II), N. Saskatchewan R., Alberta				1	1	Smythe 1968: 213, 214
1801	Great Fall House, Little Grand Rapids, Beren's R., Manitoba				1	1	Lytwyn 1986: 100, 104
1801	Hair Hills (II), Pembina R., Manitoba			1		1	Coues 1897: I; Smythe 1968: 116, 117
1801	Jack R./Jack L. House, Manitoba			1		1	Smythe 1968: 87; Ross 1855: 228 ff.; Lytwyn 1986: 102
1801	Merry's House, Sharpe L., Ontario				1	1	Johnson 1967: Appendix A, citing B.239/d/123, 124; Lytwyn
1801	Qu'Appelle Post, XY Co., Saskatchewan		1			1	Smythe 1968: 134, 135, citing Harmon in Grant 1911: 100, Morton 1941: 85
1801	Summerberry R., Saskatchewan District				1	1	Johnson 1969: Appendix, citing HBCA B.239/a/123
1801	Turtle House, Wanipagow R., Manitoba				1	1	Lytwyn 1986: 101
1801	Winnipegooshish L. House, Molson L., Manitoba				1	1	Lytwyn 1986: 102
1802	Pinnacewaywinning, Pembina R., Manitoba			1		1	Coues 1897: I; Smythe 1968: 116, 117
1802	L. Manitoba House, Manitoba			1		1	Smythe 1968: 159
1802	Ft. Vermilion, N. Saskatchewan R., Alberta			1		1	HBCA B.60/e/1 fo.5; Coues 1897: II: 507-675; Tyrrell 1934: 97, 98; Smythe 1968: 205, 206
1802	Ft. Vermilion, N. Saskatchewan R., Alberta				1	1	HBCA B.60/e/1 fo.5; Coues 1897: II: 507-675; Tyrrell 1934: 97, 98; Smythe 1968: 205, 206
1802	Nottingham House, L. Athabasca, Alberta				1	1	Karklins 1983; Smythe 1968: 247
1802	Mansfield House, Peace R., Alberta				1	1	Rich 1938: 470; Smythe 1968: 262, citing Rich 1959: II: 276, MacGregor 1966: 150-152

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		Numbers of Posts					
Year	Site, Location	French	Pedla. Ind.	NWC	HBC	Total	References
1802	Ft. Liard, Peace R., Alberta			1		1	Coues 1897: II: 581 cf. Smythe 1968: 263; Wallace 1929: 81; D. Thompson Notebook NAC MG 19 A8 (2) VI/122; VII/92 f.
1802	Red L. House, Ontario				1	1	Lytwyn 1986: 103
1802	Windy L. House, Favourable L., Ontario				1	1	Lytwyn 1986: 104
1803	Upper Assiniboine House, XY Co., Assiniboine R., Saskatchewan		1			1	Smythe 1968: 149, 150, citing Grant 1911: 75; Morton 1942: 111
1803	Bad L. Post, Man/Ont			1		1	Lytwyn 1986: 103
1803	Bad L. House, Man/Ont				1	1	Lytwyn 1986: 103
1803	De Noyan's Landing, Ontario			1		1	Newton and Arthurs 1974, cited in Klimko 1994: 40
1803	De Noyan's Landing, Ontario				1	1	Taylor 1988, cited in Klimko 1994: 40
1803	Ft. Fork, XY Co., Peace R., Alberta		1			1	Wallace 1929: 107; Smythe 1968: 272, 273, citing Dempsey 1966: 17-19
1803	Forks Ft., Red R., Manitoba			1		1	Coues 1897: 225, 236, 245; Smythe 1968: 112
1803	Ft. George, Great Slave L., N.W.T.			1		1	Smythe 1968: 284
1803	Ft. William, L. Superior, Ontario			1		1	Dawson 1968; Dawson and Kleinfelder; Arthurs 1968; Smythe 1968: 56-59
1803	Horseshoe House, Peace R., Alberta			1		1	Wallace 1929: 61; Smythe 1968: 265, 266, citing Dempsey 1966: 16, D. Thompson Notebook NAC MG 19 A8 (2) VII/92
1803	Indian L. House, Churchill R., Manitoba			1		1	Smythe 1968: 98, citing D.Thompson Notebooks NAC MG 19 A8 (2) VII/52, and VIII/34, 35
1803	Island L. House, Manitoba				1	1	Lytwyn 1986: 102
1803	Lac Seul Post, Ontario				1	1	HBCA B.107/a/1
1803	Pigeon R. Post, L. Winnipeg, Manitoba			1		1	Lytwyn 1986: 104
1803	Pigeon R. Post, XY, L. Winnipeg, Manitoba		1			1	Lytwyn 1986: 104

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		Numbers of Posts					
Year	**Site, Location**	**French**	**Pedlars/Ind.**	**NWC**	**HBC**	**Total**	**References**
1803	Riviere aux Morts, Red R.. Manitoba			1		1	Coues 1897: I: 225; Smythe 1968: 225
1803	Trout L. Post, NWC, Big Trout L., Ontario			1		1	Lytwyn 1986: 117
1803	Upper Poplar R., House, Lower Rice (Eardley) L., Ontario				1	1	Lytwyn 1986: 104
1803	Windy L. Post, Favourable L., Ontario			1		1	Lytwyn 1986: 104
1804	Cranberry Portage House, Grass R., Manitoba			1		1	Tyrrell 1916: lxx,lxxxv; Smythe 1968: 95
1804	Carlton House (II), S. Saskatchewan R., Saskatchewan				1	1	Rich 1938: 414; Smythe 1968: 192.
1804	Chesterfield House (II), S. Saskatchewan R.			1		1	Johnson 1967: 298
1804	Dog L. House, Manitoba			1		1	Smythe 1968: 160.
1804	Dog R. House, Ontario			1		1	Smythe 1968: 60, citing NAC MG19 A8 (2) VII, 8, 32
1804	Ft. of the Forks/Grand R. Forks/Mackenzie Forks, Mackenzie R., N.W.T.			1		1	Masson 1889: I: 77f.; Smythe 1968: 285, citing Stager 1962: 40, 41, Fleming 1940: 44
1804	Ft. Good Hope (I), Mackenzie R., N.W.T.			1		1	Rich 1938: 393; Smythe 1968: 290, 291, citing Stager 1962: 41-
1804	Ft. La Souris, Assiniboine R., Manitoba			1		1	Coues 1897: I: 297, 298; Stewart 1930: 19, 20-23; cf. Hamilton 1990: 123; cf. Smythe 1968: 103, 126, 127 gives date of 1805, citing Grant 1911: 107, Laroque 1911:
1804	Ft. Norman (I), Mackenzie R., N.W.T.			1		1	Wallace 1929: 91; Smythe 1968: 288, citing Stager 1962: 40
1804	Hair Hills (III), Pembina R., Manitoba			1		1	Coues 1897: I; Smythe 1968: 116, 117
1804	Lac des Ecorces/Bark L. Post, Birch L., Ontario			1		1	Lytwyn 1986: 109
1804	Lac des Mille Lacs, Maligne R., Ontario			1		1	Gates 1933: 300; Smythe 1968: 61, citing D. Thompson Notebook NAC MG 19 A8 (2) VII/10, 13

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1804	Le Lac au Flambeau, Minnesota			1		1	Masson 1890:I:258
1804	Little Grand Rapids, Night Owl Rapids, Ontario			1		1	Lytwyn 1986: 107
1804	Little Grand Rapids, XY, Night Owl Rapids, Ontario		1			1	Lytwyn 1986: 107
1804	Nelson House, Nelson R., Manitoba			1		1	Rich 1938: 420; Merk 1931: 9; Smythe 1968: 97; Tyrrell 1916; lxxxiv
1804	Owl L. Post, McInnes L., Ontario			1		1	Lytwyn 1986: 110
1804	Owl L. Post #2, McInnes L., Ontario			1		1	Lytwyn 1986: 110
1804	Owl L. House, McInnes L., Ontario				1	1	Lytwyn 1986: 108
1804	South Branch House (II), S. Saskatchewan R., Saskatchewan			1		1	Grant 1911: 116, 117; Coues 1897: II: 484, 490, 491; Smythe 1968: 191
1804	Snake R., Minnesota			1		1	Hamilton 1990: 77, 106-108
1804	Stone L./Stone Indian L. House, Assinika L., Ontario				1	1	Lytwyn 1986: 108
1805	Carlton House (III), N. Saskatchewan R., Saskatchewan				1	1	HBCA B.60/a/6,7; B.239/b/78, 79
1805	Bad L. House, HBC, Ontario				1	1	Lytwyn 1986: 113
1805	Bad L. Post, NWC, Ontario			1		1	Lytwyn 1986: 113
1805	Deer L., Outpost, HBC, Ontario				1	1	Lytwyn 1986: 113
1805	Deer L., House,/Lac des Carriboux, Reindeer L., Saskatchewan			1		1	Davidson 1918: 302; Rich 1938: 203; Smythe 1968: 226, 227; Tyrrell 1916: lxxxv, 153
1805	Ft. Dunvegan, Peace R., Alberta			1		1	McDonald 1970: 16; Rich 1938: 415; Wallace 1929: 71, 122 f.; Smythe 1968: 273, 274
1805	Great Fall, Ontario			1		1	Lytwyn 1986: 113
1805	Ft. Liard/Wentzel's Ft./Ft. de l' Or, N.W.T.			1		1	Pyszczyk 1985: 29-50; Masson 1890: II: 66; Smythe 1968: 286, citing Stager 1962: 40
1805	Ft. McLeod, B.C.			1		1	Kenny 1975: 4.

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		Numbers of Posts					
Year	**Site, Location**	**French**	**Pedlars/Ind.**	**NWC**	**HBC**	**Total**	**References**
1805	Moar L. House, HBC, Man./Ont.				1	1	Lytwyn 1986: 112
1805	Lac du Bonnet, NWC, Manitoba			1		1	Lytwyn 1986: 115
1805	Mountain Portage House, Ontario			1		1	Grant 1911: 113;
1805	Musqwawegan, Churchill R., Manitoba			1		1	Smythe 1968: 97, citing D. Thompson Notebook NAC MG 19 A8 (2) VII, VIII
1805	Reed L. House, Grass R., Manitoba			1		1	Tyrrell 1916: lxx, lxxxvSmythe 1968: 94
1805	Rice L., NWC, Ontario			1		1	Lytwyn 1986: 112, 113
1805	Sandy Pt. L. House, HBC, Goose L., Ontario				1	1	Lytwyn 1986: 113
1805	Rocky Mountain Portage, Peace R., B.C.			1		1	Grant 1911: 145; Lamb 1960: 16, 163 ff.; McDonald 1970: 18; Rich 1938: 384; Wallace 1929: 70, 71; Smythe 1968: 276, citing Fleming 1940: 104, Stuart NAC MG 19 C1 A/14; founded in 1804, says Gibson 1997:21
1806	Encampment Is. Ft., Peace R., Alberta			1		1	McDonald 1970: 14,15; Wallace 1929: 76, 77, 80, 81, 113; Smythe 1968: 266
1806	Ft. Eppinette/Ft. St. George, Peace R., B.C.				1	1	Wallace 1929; Davidson 1918: 303; McDonald 1970: 17; Rich 1938: 384; Rich 1939: 264, 266; Smythe 1968: 275
1806	Ft. Dauphin, Manitoba				1	1	Dauphin Archaeological Chapter 1975, 1976, Syms 1977, Monks 1978, 1979, cited in Klimko 1994:
1806	Ft. Fraser, Fraser L., B.C.			1		1	Kenny 1975: 3; Gibson 1997:3
1806	Ft. St. James (also known as Stuart's L.), Stuart L., B.C.			1		1	Kenny 1975: 5; Gibson 1997:3
1806	Ft. St. John, Peace R., B.C.			1		1	McDonald 1970: 17; Rich 1938: 384; Wallace 1929: 76, 113; Smythe 1968: 274
1806	Great Fall House, Manitoba				1	1	Lytwyn 1986: 116

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1806	Grey Goose L., Upper Goose L., Ontario				1	1	Lytwyn 1986: 116
1806	Jack L. House, Gunisao R., Manitoba				1	1	Lytwyn 1986: 116
1806	Poplar R. mouth, Manitoba				1	1	Lytwyn 1986: 116
1806	Weaver L., Manitoba				1	1	Lytwyn 1986: 116
1807	Beaver Lodge Post, Trout L., Ontario				1	1	Lytwyn 1986: 118
1807	Drunken L. House, Wrong L., Manitoba				1	1	Lytwyn 1986: 135
1807	Ft. Hibernia, Upper Assiniboine R.,				1	1	Smythe 1968: 145, citing Morton 1942: 112, 113
1807	Ft. Hibernia (II), Upper Assiniboine R., Saskatchewan				1	1	Merk 1931: 158; Fleming 1940: 432, 433; Smythe 1968: 149, citing Morton 1942: 112, 113
1807	Ft. George, Nechako R. & Fraser R., B.C.			1		1	Kenny 1975: 3; Gibson 1997:4
1807	Kootenay House, B.C.			1		1	Kenny 1975: 6
1807	Boggy Hall, N. Saskatchewan R., Alberta			1		1	Smythe 1968: 217; Coues 1897:II:738,740
1807	Quagmire Hall/Muskake Ft., N. Saskatchewan R., Alberta			1		1	Coues 1897:II:740
1808	Island L., Manitoba			1		1	Smythe 1968: 85, citing Fleming 1940; Oliver 1915; Wallace 1934:
1808	Little Ripple House, Night Owl Falls, Ontario				1	1	Lytwyn 1986: 122
1808	Little Ripple Post, Night Owl Falls, Ontario			1		1	Lytwyn 1986: 122
1808	Riviere aux Tourtes, Ontario			1		1	Wallace 1934: 257; Smythe 1968:
1808	Trout L. House, Big Trout L., Ontario				1	1	Lytwyn 1986: 118, 119
1809	Eagle L. House, Ontario				1	1	Lytwyn 1986: 126
1809	Eagle L. Post, Ontario			1		1	Lytwyn 1986: 126
1810	Black R. House, Mukutawa R., Manitoba				1	1	Lytwyn 1986: 132
1810	Cross L. House, Manitoba				1	1	Lytwyn 1986: 132
1810	Ft la Montee, N. Saskatchewan R., Saskatchewan			1		1	Coues 1897: II: 490, 491; Morton 1929: 22, 23; Ross 1855: II: 214; Smythe 1968: 197-199

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1810	Ft. Carlton (IV), N. Saskatchewan R., Saskatchewan				1	1	HBCA B.60/a/9; Franklin 1823: 115, 116; Grant 1873: 131, 132; Smythe 1968: 196
1810	Henry's Ft., Missouri Fur Co., Henry's Fork, Idaho		1			1	Todd 1964:267, 268
1810	Island L. House, Manitoba				1	1	Lytwyn 1986: 132
1810	McDonald's Qu'Appelle Ft., Saskatchewan			1		1	Coues 1897: I: 300, 301; Masson 1890: II: 36; Morton 1941: 81-94; Smythe 1968: 138 Morton 1941: 81-94
1810	Nelson House (II), North Saskatchewan R., Alberta			1		1	Coues 1897: II: 633, 741, 742; Rich 1938: 415; Johnson 1967: 214, 215, 219; Smythe 1968: 211, citing Palliser 1863: 77, D. Thompson Notebook NAC MG
1810	Spokane House, Columbia R., Washington			1		1	Coombes 1964; abandoned in 1826 as uneconomical, Simpson in Gibson 1997:99; Spaulding 1956:31; cf. 1911 in Todd 1964:
1810	Terre Blanche (II), Upper; North Saskatchewan R., Alberta			1		1	Nicks 1969; Coues 1897: II: 633, 741, 742; Rich 1938: 415; Johnson 1967: 214, 215, 219; Smythe 1968: 211, citing Palliser 1863: 77, D. Thompson Notebook NAC MG 19A8 (2) VI/122
1810	White Earth Ft/Ft. Edmonton (III), N. Saskatchewan R., Alberta				1	1	Nicks 1969; Coues 1897: 584-746; Smythe 1968: 211
1810	Winnipegooshis House, Molson R., Manitoba				1	1	Lytwyn 1986: 132
1811	Henry House, Athabasca R., Alberta			1		1	Smythe 1968: 258, 259
1811	Boat Encampment, Canoe/Columbia R., B.C.			1		1	Kenny 1975: 2
1811	Ft. Astoria, Pacific Fur Co., Columbia R., Oregon		1			1	Todd 1964:91, citing Franchere
1811	Astor Ft Okanogan, Pacific Fur Co., Washington		1			1	Grabert 1968.

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		Numbers of Posts					
Year	**Site, Location**	**French**	**Pedlars/Ind.**	**NWC**	**HBC**	**Total**	**References**
1811	Ft. Vermilion, N. Saskatchewan R., Alberta			1		1	HBCA B.60/e/1 fo.5; Coues 1897: II: 507-675; Tyrrell 1934: 97, 98; Smythe 1968: 205, 206, citing Franchere 1854: 318, 319
1811	Paint R. House/Ft. Vermilion, N. Saskatchewan R., Alberta				1	1	HBCA B.60/e/1 fo.5; Coues 1897: II: 507-675; Tyrrell 1934: 97, 98; Smythe 1968: 205, 206, citing Franchere 1854: 318, 319
1812	C. Campbell's House, Peace R., Alberta			1		1	McDonald 1970: 15; Rich 1938: 432; Wallace 1929: 80, 81; Smythe 1968: 267, 268
1812	Coutenais House, Pacific Fur Co., Kootenay R., B.C.			1		1	Todd 1964: 436
1812	Ft. Augustus (III), N. Saskatchewan R., Alberta			1		1	HBCA B.60/e/1 fo.5; Smythe 1968: 212-214
1812	Ft. Douglas, Red R., Manitoba				1	1	Rich 1939: lxvi-lxix; Rich 1959: II: 288-232; Bell 1927: 110, 111; Smythe 1968: 110; Wolk 1982
1812	Ft. Shew-aps/Kamloops, Pacific Fur Co., Thompson R., B.C.		1			1	Spaulding 1956:36, 99; Kenny 1975: 4; Todd 1964:433; Gibson 1997:6
1812	Ft. Edmonton (III), N. Saskatchewan R., Alberta				1	1	HBCA B.60/e/1 fo.5; Smythe 1968: 213
1812	Ft. Nelson, Ft. Nelson R., B.C.			1		1	Masson 1890: II: 287; Smythe 1968: 287
1812	Flathead Post/Ft. Spokane, Pacific Fur Co., Spokane R., Washington		1			1	Coombes 1964: 6; Todd 1964:435, 436
1812	Jack R. House, L. Winnipeg, Manitoba				1	1	Lytwyn 1986: 135
1812	Pigeon R. Post, Manitoba			1		1	Lytwyn 1986: 136
1812	Poplar R. House, Manitoba				1	1	Lytwyn 1986: 135
1813	Jasper House (I), Athabasca R., Alberta			1		1	Masson 1890: II: 52; Merk 1931: 29, 30; Smythe 1968: 256
1813	Paint L. House				1	1	Belyk 1995: 14
1814	Ile a la Crosse (II), Saskatchewan				1	1	Smythe 1968: 234
1814	Ft. Qu'Appelle (I), Qu'Appelle R., Saskatchewan				1	1	Morton 1941: 87-90; Smythe 1968: 137

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1814	Ft. John, Qu'Appelle R., Saskatchewan			1		1	Morton 1941: 87-90; Smythe 1968: 138, citing Selkirk papers NAC MG 19 E, pp. 9058, 9061
1814	Long Lac Post, Long Lake, Ontario				1	1	Dawson 1969: 4
1814	Norway Hse (I), Manitoba				1	1	Fleming 1940: 112; Gates 1954: 146; Smythe 1968: 89,90
1815	Ft. Wedderburn, L. Athabasca, Alberta				1	1	Rich 1938; Rich 1939; Smythe 1968: 247
1816	Beaver Cr. Post, Assiniboine R., Saskatchewan				1	1	Morton 1941: 90-91; Stewart 1930: 28, 29; Smythe 1968: 132
1816	Ft. Esperance (II), Qu'Appelle R., Saskatchewan			1		1	Chism 1971, cited in Klimko 1994: 72; Morton 1941: 82-90; Smythe 1968: 136
1816	Ft. Mosquito, Saskatchewan R., Saskatchewan			1		1	Meyer 1980, cited in Klimko 1994: 74
1816	Great Fall House, Ont./Man.				1	1	Lytwyn 1986: 144
1816	Hill R. House				1	1	Petch 1987, 1988, cited in Klimko 1994: 55
1816	Neosquiscaw Ft., Quebec				1	1	HBCA B.143/e/3 fo. 1; Hamilton 1890: 77,
1816	Pointe de Meurons, Ontario						Kleinfelder 1971; Fox 1975; Hinshelwood 1989
1816	Red L. Post, Ontario			1		1	Lytwyn 1986: 144
1816	Rock Depot/Gordon House, Hayes R., Manitoba				1	1	McDonald 1970: 2; Rich 1938: 423, 424; 1939: 94; Tyrrell 1934: 588; Smythe 1968: 83
1817	Bad L. Post, Manitoba			1		1	Lytwyn 1986: 145, 147
1817	Fidler's Ft., forks of Red and Assiniboine Rivers, Manitoba					1	Bell 1927: 28-30; Smythe 1968: 113
1817	Ft. Alexander, Mackenzie R., N.W.T.			1		1	Janes 1974: 17; Rich 1938: 395, 396; Smythe 1968: 288, citing Stager 1962: 40
1817	Ft. Fraser (II), Fraser L., B.C.			1		1	Kenny 1975
<1817	Ft. Providence, Great Slave L., N.W.T.			1		1	Smythe 1968: 283.

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Year	Site, Location	Numbers of Posts					References
		French	Pedlars/Ind.	NWC	HBC	Total	
1818	Brandon Hse (II), Assiniboine R., Manitoba				1	1	Bell 1927: 28-30; Fleming 1940: 50, 51; Stewart 1930: 12, 27-28. 34, 35; Smythe 1968: 128, 129
1818	Colvile House, Peace R., Alberta			1		1	Rich 1938: 383, 384, 415; 1939: 89, 111, 113, 114, 264, 265; Smythe 1968: 261
1818	Ft. Frances, Rainy R., Ontario				1	1	Rajnovich and Reid 1984, cited in Klimko 1994: 40
1818	Ft. Waterloo, Lesser Slave L., Alberta				1	1	Rich 1938: 10, 64, 419; Smythe 1968: 254
1818	Great Fall Post, Man/Ont.			1		1	Lytwyn 1986: 148
1818	Great Fall's Outpost, Man/Ont.				1	1	Lytwyn 1986: 148
1818	Hay River, N.W.T.			1		1	Rich 1938: 417; Smythe 1968: 284
1818	John's House, Peace R., Alberta			1		1	McDonald 1970: 13; Smythe 1968: 260
1818	St. Mary's House (I), Peace R., Alberta				1	1	McDonald 1970: 15; Rich 1938: 376-379, 424; 1939: 108; Wallace 1929: 106; Smythe 1968: 270.
1818	Ft. Nez Perces, Columbia R., Washington			1		1	"Singular...from all other trading posts" Ross, Spaulding 1956:117
1819	Bad L. House, Manitoba				1	1	Lytwyn 1986: 150
1819	Beaver Cr. Post, Wassiniboine R., Saskatchewan			1		1	Morton 1941: 90-91; Stewart 1930: 28, 29; Smythe 1968: 132
1819	Berens House, Athabasca R., Alberta				1	1	Franklin 1823: 135, 136; Rich 1938: 362, 363, 413, 414, 423; Smythe 1968: 251
1819	Big L. Outpost, Trout L?, Ontario				1	1	Lytwyn 1986: 155
1819	Ft. Resolution, Great Slave L., N.W.T.				1	1	Rich 1938; 1939: 96, 106, 117, 118, 264; Smythe 1968: 282
1819	Harrison's House, L. Athabasca, Saskatchewan				1	1	Rich 1938: 361, 362; Smythe 1968: 243, 244, citing Tyrrell and Dowling1934: 62, 63
1819	La Loche House (III), Lac la Loche, Saskatchewan				1	1	Steer 1977: 263.
1819	Logan's Depot, Hayes R., Manitoba				1	1	Franklin 1823: 35; Garry 1900: 149; Smythe 1968: 84

APPENDIX 3. Competition as Numbers of Posts Recorded Through Time in Northwestern North America.

		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1819	Moose L. Ft., Manitoba			1		1	Fleming 1940: 77; Masson 1890: II: 222-224; Smythe 1968: 169,
1819	Pierre au Calumet, Athabasca R., Alberta			1		1	Franklin 1823: 135, 136; Rich 1938: 362, 363, 413, 414, 423; Smythe 1968: 251.
1819	Red L. Outpost, Ontario				1	1	Lytwyn 1986: 155
1819	Sandy Pt. L., Goose L., Ontario				1	1	Lytwyn 1986: 150
1819	St. Mary's House (II), Peace R., Alberta				1	1	McDonald 1970: 15; Rich 1938: 376-379, 424; 1939: 108, 112; Wallace 1929: 106; Smythe 1968:
1820	Great Fall House, Man/Ont.			1		1	Lytwyn 1986: 156
1820	Ile a la Crosse (III)/Ft. Superior, Saskatchewan				1	1	Rich 1938: 417; Smythe 1968: 234
1820	Iron Island, Favourable L., Ontario			1		1	Lytwyn 1986: 156
1820	La Loche House (IV), Lac la Loche, Saskatchewan			1		1	Steer 1977: 263.
1820	Sandy Bar House, Beren's R., Manitoba				1	1	Lytwyn 1986: 156
1820	St. Mary's House (III), Peace R., Alberta				1	1	McDonald 1970: 15; Rich 1938: 376-379, 424; 1939: 108, 112; Wallace 1929: 106; Smythe 1968:
1820	Ft. Liard/Wentzel's Ft./Ft. de l' Or, Liard R., N.W.T.				1	1	Rich 1938: 394; McDonald 1970: 11; Smythe 1968: 286, citing Stager 1962: 40
1820	Ft. de Pinette, Peace R., B.C.				1	1	Smythe 1968: 275
1821	Ft. Alexandria, Fraser R., B.C.			1			Kenny 1975; Gibson 1997:4
1821	Wabinosh House, Ontario				1	1	Dawson 1967, 1968
1822	Dalles, Winnipeg R., Ontario				1	1	Coues 1897: I: 28; Gates 1954: 105; Fleming 1940; Rich 1959: II: 179, 180; Smythe 1968: 71, 72, citing D. Thompson Notebook NAC MG 19 A8 (2) III/151, 162
1822	Ft. Babine (also known as Ft. Kilmaurs), Babine L., B.C.				1	1	Kenny 1975: 2; Gibson 1997:4

APPENDIX 3. Competition as Numbers of Posts Recorded Through Time in Northwestern North America.

		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1822	Ft. Simpson, Mackenzie R., N.W.T.				1	1	HBCA B.200/a/1; Fleming 1940: 44; McDonald 1970: 11; Smythe 1968: 286, citing Stanley 1955: 198, 199; Wallace 1932: 312 f., Stager 1962: 40-41
1823	Bois Blanc, Basswood L., Ontario				1	1	Fleming 1940; Oliver 1915: II; Smythe 1968: 64, 65
1823	Ft. Good Hope (II), Mackenzie R., N.W.T.				1	1	Smythe 1968: 291, citing Stager 1962: 41, 42
1823	Ft. McLeod (II), McLeod L., B.C.				1	1	Kenny 1975: 5
1823	Ft. Norman (II), Mackenzie R., N.W.T.				1	1	Wallace 1929: 91; Smythe 1968: 289, citing Stager 1962: 41
1824	Berens River Post, L. Winnipeg, Manitoba				1	1	Fleming 1940; Smythe 1968: 75
1824	Ft. Pelly (I), Saskatchewan				1	1	Klimko 1983; Fleming 1940: 78; Morton 1942: 112-114; Palliser 1863: 59; Southesk 1875: 322; Smythe 1968: 144
1824	Ft. Assiniboine, Athabasca R., Alberta				1	1	HBCA B.8/e/1; Fleming 1940: 405, 109; Kane 1968: 251, 254; Smythe 1968: 254, 255
1824	Whitefish Lake, Ontario				1	1	Fleming 1940 : 278; Oliver 1915; Smythe 1968: 70
1824	Windy L. House, Charron L., Manitoba				1	1	Fleming 1940: 82 ff.; Smythe 1968: 85
1825	Ft. Colvile, Columbia R., Washington				1	1	Chance 1972, Gibson 1997:99
1825	Ft. Franklin, exploration base, subsequently post, Great Bear L., N.W.T.				1	1	Masson 1890: II: 100; Smythe 290, citing Stager 1962: 39
1825	Ft. Good Hope (III), Mackenzie R., N.W.T.				1	1	Smythe 1968: 291, citing Stager 1962: 41, 42
1826	Kipp'sPost,Columbia Fur Co., Missouri R., S. Dakota		1			1	Woolworth and Wood 1960
1826	Norway Hse (II), Playgreen L., Manitoba				1	1	McLean 1932: 131, 132; Smythe 1968: 87-89, citing Glazebrook 1938: 99, 131, 171, 355

APPENDIX 3. Competition as Numbers of Posts Recorded Through Time in Northwestern North America.

		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1827	Dog Rump Creek House, N. Saskatchewan R., Alberta				1	1	Fleming 2940: 237; Ermatinger 1912: 102; Smythe 1968: 209
1827	Ft. Connolly, or Bear L., Sustut R., B.C.				1	1	Kenny 1975: 3; Gibson 1997:4
1827	Ft. Langley (I), Fraser R., B.C.				1	1	HBCA Post Summary, and B.113/a/1Kenny 1975: 4
1827	Ft. Walla Walla/Nez Perces, Columbia R., Washington				1	1	HBCA Post Summary; Garth 1952: 43(I); 27-50; Hines, 1939; Wilkes 1845: vol. IV: 390-392
1828	God's L. House/Manitou L., Manitoba				1	1	Fleming 1940: 210 ff.; Smythe 1968: 85
1828	Brandon Hse (III), Assiniboine R., Manitoba				1	1	Stewart 1930: 28-32; Smythe 1968: 129
1828	Brandon Hse (IV), Assiniboine R., Manitoba				1	1	Hamilton 1990: 103; Stewart 1930: 28-32; Smythe 1968: 129
1829	Ft. Pitt, N. Saskatchewan R., Saskatchewan				1	1	Fleming 1940: 237; Kane 1968: 215 ff.; McDougall 1895: 142; Smythe 1968: 204
1829	Jasper Hse (II), Athabasca R., Alberta				1	1	Kane 1968: 105; Moberly and Cameron 1929: 51; Smythe 1968: 257, citing Thompson 1960: 18-23
1829	Ft. Chilcotin, Chilcotin R., B.C.				1	1	Kenny 1975: 3; Gibson 1997:4
1829	Ft. Halkett, Liard R., B.C.				1	1	Kenny 1975: 4
1830	Ft. Chimo, Koksoak R., Quebec				1	1	HBCA B.38/a/1
1830	Deer's L. House, Reindeer L., Saskatchewan				1	1	Fleming 1940: 254
1831	Shoal Lake House, Ontario				1	1	Tamplin 1967, cited in Klimko 1994: 54; Smythe 1968: 70; Fleming : 278; Oliver 1915: II
1831	Shoal River Post, Swan R., Manitoba				1	1	Harmon 1911: 30, 48; Morton 1939: 435; Tyrrell 1916: lxxiii; Smythe 1968: 154
1831	Ft. Lookout, French Fur Trading Co., Missouri R., A. Dakota		1			1	Miller 1960: 55

APPENDIX 3. Competition as Numbers of Posts Recorded Through Time in Northwestern North America.

		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1831	Ft. Ellice (I), Manitoba				1	1	Klimko 1994: 54; Smythe 1968: 133; Cheadle 1931: 54; Morton 1941: 92-93; Palliser 1863: 47
1831	Norway Hse (II), Playgreen L., Manitoba				1	1	McLean 1932: 131, 132; Smythe 1968: 87-89, citing Glazebrook 1938: 99, 131, 171, 355
1831	Rapid R., Saskatchewan				1	1	Smythe 1968: 228
1831	Ft. Vermilion (II), Peace R., Alberta				1	1	Fleming 1940: 204-272; Oliver 1915: II; McDonald 1970: 14; Smythe 1968: 263
1831	Port Simpson/Ft. Simpson/Ft. Nass; Nass R., B.C.				1	1	HBCA Post Summary; Kenny 1975: 6; Gibson 1997: endpapers map
1832	Piegan Post, Bow R., Alberta				1	1	Nesbitt 1987; Smythe 1968: 220
1833	Ft. McLoughlin, Campbell I., B.C.				1	1	HBCA Post Summary; Tolmie 1963; Kenny 1975: 5
1833	Michaelovski, Russian America Co., St. Michael's I., Alaska			1		1	Whymper 1966: 86, 128
1833	Ft. Seaborn, Manitoba				1	1	Belyk 1995: 89
1833	Split L., House (II)/Three Points L., Split L., Manitoba				1	1	Oliver 1915: II: 700, 701; Smythe 1968: 96
1833	Island L. House, Manitoba				1	1	Fleming 1940; Oliver 1915: II; Wallace 1934: 257
1834	Fort Simpson II, B.C.				1	1	Kenny 1975: 6; endpapers map
1835	Upper Ft. Garry, Red R., Manitoba				1	1	Priess 1978,McLeod 1986, Monks 1981, 1982, 1983, cited in Klimko 1994: 54; Smythe 1968: 114
1835	Rapid R. House, Churchill R., Saskatchewan				1	1	Smythe 1968: 228
1835	Rocky Mountain House II, N. Saskatchewan R., Alberta				1	1	Steer and Rogers 1978; Smythe 1968: 218
1835	Port Essington, B.C.				1	1	Kenny 1975
1836	Ft. Alexandria (II), Fraser R., B.C.				1	1	Kenny 1975; moved to west side of river, Gibson 1997:4
1836	Ft Babine, Babine L., B.C.				1	1	Kenny 1975: 2
1836	Ft. Desjarlais, Manitoba				1	1	Martin 1967, 1968, cited in Klimko 1994: 54

APPENDIX 3. Competition as Numbers of Posts Recorded Through Time in Northwestern North America.

		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1836	Rat Portage, Winnipeg R., Ontario				1	1	Oliver 1915: II; Kane 1968: 43; Smythe 1968: 71: Hind 1974: I:
1838	Dease L. Post, B.C.				1	1	Kenny 1975: 2
1839	Ft. Langley (II), Fraser R., B.C.				1	1	Rich 1943: 216; Kenny 1975
1840	Ft. McPherson, Peel R., N.W.T.				1	1	HBCA B.157/1/1-7; HBCA Post Summary
1840	Moose Lake Post, Ontario				1	1	Newton and Englebert 1975
1840	Lower Post, B.C.				1	1	Kenny 1975: 7
1840	Unalacheet R. Post, Yukon R., Alaska		1			1	Whymper 1966: 134
1842	Ft. George, Union Fur Co., Missouri R., N. Dakota		1			1	Smith 1968
1842	Ft. Kamloops (II), Thompson R., B.C.				1	1	Kenny 1975: 4
1842	Ft. Nascopie, L. Attikamagen, Quebec				1	1	HBCA B.139/a/1
1843	Ft. Kamloops (III), Thompson R., B.C.				1	1	Kenny 1975: 4
1843	Ft. Union, Union Fur Co., Missouri R., S. Dakota		1			1	Smith 1968: 18, citing Denig in Audubon 1897: II: 180
1843	Ft. Victoria, B.C.				1	1	Kenny 1975: 6
1846?	Ft. Walla Walla, Columbia R., Washington				1	1	Kane 1968: 189 ff.
1846	Ft. a la Corne (I), Saskatchewan R., Saskatchewan				1	1	Ranere 1967: 73, cited in Klimko 1994: 73; Tyrrell 1916: lxxxviii-lxxxix1934: 24, 25, 1916: ;Smythe 1968: 184
1847	Ft. Yale, Fraser R., B.C.				1	1	Kenny 1975: 6
1847	Ft. Yukon, Yukon R., Alaska				1	1	HBCA B.240/a/1-8; Wilson 1947
1848	Ft. Hope, Fraser R., B.C.				1	1	Kenny 1975: 4
1848	Ft. McPherson, Peel R., N.W.T.				1	1	HBCA Post Summary
1849	Ft. Rupert, Beaver Harbour, Vancouver I., B.C.				1	1	HBCA B.185/a/z; Beattie, Manuscript Report No. 131; Judd 1989; Kenny 1975: 5
1850	Touchwood Hills Post, Saskatchewan				1	1	Hind 1971: I: 413-415; Smythe 1968: 150, citing Cheadle 1931:

APPENDIX 3. Competition as Numbers of Posts Recorded Through Time in Northwestern North America.

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1851	Fond du Lac, L. Athabasca, Saskatchewan				1	1	Rich 1956: 225; Tyrrell 1895; Smythe 1968: 243
1852	Ft. McPherson, Peel R., N.W.T.				1	1	HBCA Post Summary
1853	Ft. Norman (III), Mackenzie R., N.W.T.				1	1	Wallace 1929: 91; Smythe 1968: 290, citing Stager 1962: 41
1855	Lane's Post, Assiniboine R., Manitoba				1	1	McLeod 1986, cited in Klimko 1994: 55
1855	Ft. Pierre (II), P. Choteau Jr. and Co. (American Fur Co.), S. Dakota		1			1	Smith 1960: 87
1856	Ft. Pelly (II), Saskatchewan				1	1	Morton 1942: 114; Palliser 1863: 59; Smythe 1968: 143, citing Southesk 1875: 322
1856	Fort Shepherd/ Pend d'Oreille, Columbia R., B.C.				1	1	Ruggles 1991:114; Kenny 1975: 6
1857	Sand Hills Post, Souris R., Manitoba				1	1	Palliser 1863: 46; Smythe 1968: 131, citing Hind 1859: 43
1857	Ft. Qu'Appelle (II), Qu'Appelle R., Saskatchewan				1	1	Cowie 1993; Southesk 1875: 59-64; Palliser 1863: 51; Smythe 1968: 139, citing Petty 1949: 31-
1857	Cedar Lake House, Manitoba				1	1	Hind 1971: I: 460; Smythe 1968:
1858	Manitoba House, L. Manitoba, Manitoba				1	1	Smythe 1968: 159
1858	Jackfish L. House, Saskatchewan				1	1	Palliser 1863: 81; Smythe 1968: 201
1858	Ft. St. John (II), Peace R., B.C.				1	1	Kenny 1975: 5
1859	Riding Mountain House, Manitoba				1	1	Hems 1987, cited in Klimko 1994: 5
1859	Duck Bay House, L. Winnipegosis, Manitoba				1	1	Smythe 1968: 158, citing Southesk 1875: 340, 341
1859	Red Rock House, Ontario				1	1	Dawson 1969; Arthurd 1982, 1983; Hamilton 1984, 1985
1859	Ft. Simpson, Chatham Sound, B.C.				1	1	HBCA Post Summary; Kenny 1975: 6
1861	Ft. Anderson, Anderson R., N.W.T.				1	1	HBCA Post Summary; Hohn 1963: 22-29; Stager 1967:45-56

APPENDIX 3. Competition as Numbers of Posts Recorded Through Time in Northwestern North America.

		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1861	Kootenay House (II), Kootenay R., B.C.				1	1	Kenny 1975: 7
1862	Ft. Ellice (II), Beaver Creek, Manitoba				1	1	Cowie 1993: 282; Morton 1941: 93; Smythe 1968: 134
1862	Ft. Mumford, Stikine R., B.C.				1	1	Kenny 1975: 5
1862	Ft. Kamloops (IV), Thompson R., B.C.				1	1	Kenny 1975: 4
1863	Poplar R. House, L. Winnipeg, Manitoba				1	1	Lytwyn 1986: 162
1864	Ft. Qu'Appelle (III), Qu'Appelle R., Saskatchewan				1	1	Brandon 1990, Brace 1991, cited in Klimko 1994: 72; Cowie 1993; Smythe 1968: 140
1864	Victoria Post, N. Saskatchewan R., Alberta				1	1	Forsman 1985; Hurt 1979
1865	Ft. Nelson (II), Ft. Nelson R., B.C.				1	1	Kenny 1975: 5
1865	Rocky Mtn Portage (II), Peace R., B.C.				1	1	Kenny 1975: 7
1866	Nulato, Russian America Co., Yukon R., Alaska		1			1	Whymper 1966: 170
1866	Rocky Mtn. Hse (III), N. Saskatchewan R., Alberta				1	1	Steer and Rogers 1978: 48; Smythe 1968: 219
1869	Last Mountain House, Saskatchewan				1	1	Klimko and Hodges 1993; Cowie 1993; Smythe 1968: 151
1869	Poplar R. House, HBC, L. Winnipeg, Manitoba				1	1	Lytwyn 1986: 162
1869	Rampart House, Porcupine R., Yukon				1	1	HBCA B.240/b/1; B.200/b/40 fos. 25d-26
1870	Hudson Hope, Peace R., B.C.				1	1	Wallace 1929: 71; Smythe 1968: 276, citing D. Thompson Notebook, NAC MG 19 A8 (2)
1870	Ft. McMurray, Athabasca R., Alberta				1	1	Moberly and Cameron 1929: 140-143; Smythe 1968: 252; Comfort 1974
1872	Ft. Babine, Babine L., B.C.				1	1	Kenny 1975: 5: 2
1873	St. Anne's Post				1	1	McLeod 1980, cited in Klimko 1994: 55
1873	Ft. St. John (III), Peace R., B.C.				1	1	Kenny 1975: 5

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		Numbers of Posts					
Year	Site, Location	French	Pedlars/Ind.	NWC	HBC	Total	References
1875	Toad River Post, Liard R., B.C.				1	1	Kenny 1975: 7
1875	Red R. Outpost, Peace R., Alberta				1	1	HBCA G.1/281
1876	Battleford, N. Saskatchewan R., Saskatchewan				1	1	Perry 1972, cited in Klimko 1994: 74
1879	Ft. Fraser (III), Fraser L., B.C.				1	1	Kenny 1975: 3
1883	Sturgeon L. Outpost, Alberta				1	1	HBCA B.353/e/1 fo.3
1885	Ft. St. John (IV), Peace R., B.C.				1	1	Kenny 1975: 5.
1887	Ft. a la Corne (II), Saskatchewan R., Saskatchewan				1	1	Tyrrell 1916: lxxxviii,lxxxix; Smythe 1968: 184, 185, citing Geddes 1933: 36, 37
1889	Whiefish L., Alberta				1	1	HBCA B.239//k/4, fo. 41
1890	Ft. Grahame, Finlay R., B.C.				1	1	Kenny 1975: 3
1890	Sand Point Post, Ontario		1			1	Dawson 1969, cited in Klimko 1994: 39
1890	Sand Point Post, Ontario				1	1	Dawson and Kleinfelder 1970, cited in Klimko 1994: 39
1891	Sandy L. Post, Saskatchewan				1	1	Jarvenpa and Brumbach 1979, cited in Klimko 1994: 74
1893	Grand Rapids Post, Manitoba				1	1	HBCA PAM B. 285/e/2 fo. 2-4.
1894	Big Trout Outpost, Ontario				1	1	Balmer 1979, cited in Klimko: 1994: 40
1895	Ft Simpson/Ft. Nass, B.C.				1	1	HBCA Post Summary
	Column Totals	37	128	199	299	661	

APPENDIX 4. Fur Trade Fort Sizes.

Date	Site, Location	Fort Area (Square Feet)	References
1686	Ft. Albany, HBC, Albany R., Ontario	7,455	Kenyon 1986: 83
1686	Moose Factory, HBC, Moose R., Ontario	16,900	Kenyon 1986: 78, citing de Troyes; cf. 22,500 of Kenyon 1986: 84
1686	Rupert House, HBC, Rupert R., Quebec	15,000	Kenyon est., 1986: 84, cf. 18,560 measured from plan p. 83
1717	Ft. Ouiatenon, French, Wabash R., Indiana	19,200	Tordoff 1983: 149
1731	Fort St. Pierre, French; Rainy R., Ontario	2,500	Burpee 1927: 102,103
1732	Fort Prince of Wales, HBC, Churchill R., Manitoba	17,000	Hamilton 1990: 81, cf. 104,144 sq. ft. in Hamilton 1990: 77
1732	Ft. St. Charles, French, Lake of the Woods, Minnesota	6,000	Burpee 1927: 103n, Champagne 1968:130, Prud'homme 1916:149
1734	Fort Maurepas, French, Winnipeg R., Manitoba	36,800	Planned size; actual unknown, Beauharnois in Burpee 1927:128
1740	Ft. Ouiatenon, French, Wabash R., Indiana	42,000	Tordoff 1983: 149
1744	Michilimackinac, French, Michigan	85,525	Gerin Lajoie 1976: 6
1753	Ft. St. Louis/Ft. la Corne, French, Saskatchewan	9,000	Coues 1897: II: 482; Smythe 1968: 185, 186, citing Burpee :352, : 97, Franchere 326, Morton 1928: 59, Tyrrell 1934:
1762	Ft. Sault Ste. Marie	12,100	Bain 1969:60
1772	LeBlanc/Finlay's House, Pedlars, Saskatchewan	3,600	Burpee 1908: 116; Smythe 1968: 181, citing Cocking
1773	LeBlanc/Finlay's House, Pedlars, Saskatchewan	6,000	Smythe 1968: 181, citing Morton sketch
1773	Fort aux Trembles, Pedlars, Saskatchewan	11,550	Wilson, Hall-Donahue, and Carter 1979: ff. p. 89
1775	Fort de Prairie, Pedlars, Saskatchewan	43,562	Bain 1969: 319
1779	Hudson House, HBC, Saskatchewan	6,400	Rich 1952: 27n
1784	Umfreville's House, Pedlar, Saskatchewan R., Saskatchewan	7,800	Coues 1897: II: 504, 505; Tyrrell 1934: 585; Smythe 1968: 203, citing Umfreville 1790: 146-149, Stewart D.T. Surveys : 302
1784	Hudson House, HBC, Saskatchewan	12,100	Pyszczyk 1992:36; cf. 11,025 sq. ft. in Clark 1969: 33
1785	Pine Ft./ Epinette, NWC, Assiniboine R., Manitoba	23,100	Tottle 1981: 40
1785	Pine Fort, NWC, Assiniboine R., Manitoba	14,090	Hamilton 1990:77, 94
1786	Pine Island, Pedlars, Saskatchewan R.	28,160	Ranere 1967a: 18
1790	Pine Ft./Epinette, NWC, Assiniboine R., Manitoba	26,400	Tottle 1981: 40

APPENDIX 4. Fur Trade Fort Sizes.

Date	Site, Location	Fort Area (Square Feet)	References
1790	Montagne a la Bosse, Pedlars, Assiniboine R., Manitoba	50,000	Masson 1889: I: 274; Smythe 1968: 132, citing Harmon 1911: 100
1791	Riviere Tremblante, NWC, Assiniboine R., Manitoba	36,260	Mackie 1968:103; cf. 29,028 sq. ft. in Pyszczyk 1992: 36
1792	Fort George, NWC, Alberta	26,055	Losey, Pyszczyk, et al. 1980:182
1792	Ft. Fork, NWC, Peace R., Alberta	14,400	Arnold 1972; Korvemaker 1977; Mackenzie 1971: 131; Smythe 1968: 270-272
1792	Buckingham House, Saskatchewan R., Alberta	10,000	Nicks 1969:35, citing Tomison; 17,835 sq. ft. in Pyszczyk 1990:36
1793	Buckingham House, HBC, N. Saskatchewan R., Alberta	15,200	Nicks 1969: 36,37
1793	Ft. Assiniboine, NWC, Assiniboine R., Manitoba	14,400	M.F. measurement from plan in Stewart 1930: 20; cf.17,610 sq. ft. in Hamilton 1990:77, 101, cf. 14, 208 sq. ft. on p. 103
1793	Brandon House, HBC, Assiniboine R., Manitoba	26,605	M.F. measurement from plan in Hamilton 1990:101, cf. 17,610 sq. ft. on p.77, 14, 208 sq. ft. on p. 103
1793	Riviere Tremblante, NWC, Assiniboine R., Sask.	41,402	Mackie 1968:104; cf. 29,028 sq. ft. in Pyszczyk 1992: 36
1794	Buckingham House, HBC, N. Saskatchewan R., Alberta	27,970	Nicks 1969: 36
1794	Fort George, NWC, N. Saskatchewan R., Alberta	60,860	Pyszczyk 1992:36
1794	Fort Qu'Appelle, NWC, Saskatchewan	5,280	1,000 pickets @ .66'/ea. McDonnell in Masson 1890:I:292
1794	Sandy Lake, NWC, Minnesota	10,000	Hart 1926: 318, 319
1795	Edmonton House, HBC, N. Saskatchewan R., Alberta	14,400	Johnson 1967: 36
1797	Fort George, NWC, N. Saskatchewan R., Alberta	65,835	M.F. measurement from site plan;
1799	Acton House, HBC, N. Saskatchewan R., Alberta	9,000	Noble 1973: 60, 61, 65, 155
1799	XYCo. fort at Souris R., Saskatchewan	43,560	Stewart 1928:37, citing Tyrrell
1799	Rocky Mountain House, NWC, N. Saskatchewan R., Alberta	13,257	Steer and Rogers 1978:44
1800	Grand Portage, NWC, L. Superior, Minnesota	196,020	Lamb 1957:20
1800	Chesterfield House, HBC, S. Saskatchewan R., Saskatchewan	5,840	HBCA B.34/a/2, fo.14
1800	Fort Alexandria, NWC, Assiniboine R., Manitoba	52,272	Lamb 1957: 36

APPENDIX 4. Fur Trade Fort Sizes.

Date	Site, Location	Fort Area (Square Feet)	References
1800	Park R., NWC, Red R., N. Dakota	10,000	Gough 1988:74
1801	Qu'Appelle Ft., XY Co., Qu'Appelle R., Saskatchewan	5,616	Smythe 1968: 134, 135, citing Morton 1941
1802	Yellow River Fort, NWC, Minnesota	2,476	Hamilton 1990:109, 111
1804	Fort Chipewyan, NWC, L. Athabasca, Alberta	44,780	M.F. measurement from plan
1804	Snake River Fort, NWC, Snake R., Minnesota	3,305	M.F. measurement from plan, n.a. 1979:65); cf.Hamilton 1990:77,108 gives 5,371 sq. ft.
1804	Yellow R., NWC	2,487	Hamilton 1990:77, 109
1805	Fort la Souris, NWC	14,400	Stewart 1930: 18, citing Tyrrell; cf. 19,220 sq. ft. in Stewart 1930: 18, citing Bryce 1886
1806	Epinette, NWC, Peace R., B.C.	11,011	Pyszczyk 1992:36
1810	Ile a la Crosse, NWC, Saskatchewan	27,225	Area marked for projected construction, HBCA B.89/a/2
1810	Rocky Mountain House, NWC, N. Saskatchewan R., Alberta	16,600	Steer and Rogers 1978:44, 48
1810	White Earth Ft./Ft. Edmonton (III), HBC, N. Saskatchewan R., Alberta	27,040	Nicks 1969:80
1810	Terre Blanche, NWC, N. Saskatchewan R., Alberta	52,728	Pyszczyk 1992:36 from Nicks 1969:80
1810	Acton House, HBC, N. Saskatchewan R., Alberta	10,440	Noble 1973:60
1811	Ft. Astoria, Pacific Fur Co., Columbia R., Oregon	10,800	Todd 1964:91, citing Franchere
1811	Ft. Carlton, HBC, Saskatchewan R.	18,630	HBCA G.1/76
1811	Ft. La Prairie, NWC, Saskatchewan R.	18,630	HBCA G.1/76
1815	Cumberland House, HBC, Saskatchewan	62,034	Hamilton 1990:77,90
1815	Cumberland, NWC, Saskatchewan	41,377	Hamilton 1990:77,90
1815	Fort Augustus (II), NWC, N. Saskatchewan R., Alberta	32,292	Hamilton 1990:87, cf. 32,357 sq. ft. on p.77
1815	Edmonton House (IV), HBC, N. Saskatchewan R., Alberta	26,911	Hamilton 1990:87, cf. 27,405 sq. ft. on p.77; cf. 24,300 sq. ft. in Pyszczyk 1992:36
1816	Fort Okanogan, NWC, Columbia R.; Washington	9,660	Grabert 1968:82
1816	Neosquiscaw Fort, HBC, Neosquiscaw L.; Quebec	28,540	HBCA B.143/e/3 fo.1

APPENDIX 4. Fur Trade Fort Sizes.

Date	Site, Location	Fort Area (Square Feet)	References
1816	York Factory, HBC, Hayes R., Manitoba	129,171	Hamilton 1990: 78
1819	Fort Gibralter (II), NWC	10,000	Wolk 1982:29
1818	Fort George/Astoria, Columbia R., Oregon	40,137	Hussey 1970: 257,Quarterly of the Oregon Historical Society 1918:271
1819	Fort St. Mary's, HBC, Peace R., Alberta	19,500	HBCA B.190/a/1 fo. 51
1819	Beaver Creek House, HBC	11,025	Stewart 1928:35, citing Fidler
1820	Acton House, HBC, N. Saskatchewan R., Alberta	10,440	Noble 1973: 157
1820	Ft. Chipewyan, HBC, L. Athabasca, Alberta	45,000	M.F. plan measurement
1823	Severn House, HBC, Ontario	69,840	HBCA B.198/e/6 fo.19
1824	Fort George/Astoria, HBC, Columbia R., Oregon	43,562	Merk 1968:65
1824	Fort Pelly, HBC, Assiniboine R., Saskatchewan	14,400	Klimko 1983:42, citing HBCA B.159/a/8
1826	Fort Colvile, HBC, Columbia R., Washington	22,500	Chance 1972:10
1827	Fort Langley, HBC, Fraser R., B.C.	16,200	Maclachlan 1998:36
1828	Brandon House (IV), HBC, Assiniboine R., Manitoba	11,000	Stewart 1928:30
1831	Fort Pelly, HBC, Assiniboine R., Saskatchewan	32,554	Pyszczyk 1992:36
1831	Norway House, HBC, Playgreen L., Manitoba	36,900	HBCA D.4/125
1832	Piegan Post, HBC, Bow R., Alberta	12,131	Nesbitt 1987: Fig. 1
1835	Rocky Mountain House, HBC, N. Saskatchewan R., Alberta	21,200	Steer and Rogers 1978:50
1843	Fort Victoria, HBC, Vancouver I., B.C.	99,000	Pethick 1968:54
1845	Fort Garry, HBC, Red R., Manitoba	54,432	Wolk 1982:37
1845	Fort Vancouver, HBC, Columbia R., Washington	228,456	Hussey 1970:260, from Vavasour plan
1845	Fort Colvile, HBC, Columbia R., Washington	59,536	Chance 1972: 82 (plan); elsewhere 56,977 in Chance 1972: 16, 32
1845	Ft. Walla Walla, HBC, Columbia R., Washington	17,550	M.F. plan measurement from HBCA G.1/194
1846	Fort Ellice, HBC, Manitoba	35,292	HBCA G.1/190

APPENDIX 4. Fur Trade Fort Sizes.

Date	Site, Location	Fort Area (Square Feet)	References
1846	Fort Carlton, HBC, N. Saskatchewan R., Saskatchewan	18,211	HBCA B.165/e/1
1846	Fort Pitt, HBC, N. Saskatchewan R., Saskatchewan	22,500	HBCA B.165/e/1; B.223/2/4
1848	Rocky Mountain House, HBC, N. Saskatchewan R., Alberta	24,276	Steer and Rogers 1978:50
1848	Fort Vermilion, HBC, Peace R., Alberta	18,211	Pyszczyk 1992:36
1849	Fort Garry (I or II), Red R., Manitoba	40,000	Bryce 1885: 143,144
1855	Fort Carlton, HBC, N. Saskatchewan R., Saskatchewan	52,900	Ranere 1967b:7,8
1857	Ft. Rupert, HBC, Vancouver I., B.C.	40,000	HBCA A.11/76 fo.669
1862	Fort Langley, HBC, Fraser R., B.C.	147,635	Chism 1970: 113
1864	Victoria Post, HBC, N. Saskatchewan R., Alberta	29,480	Forsman 1985:23
1864	Ft. Yukon, HBC, Yukon R., Alaska	13,225	Murray 1910
1865	Rocky Mountain House, HBC, N. Saskatchewan R., Alberta	44,100	Steer and Rogers 1978: 48; cf. 39,204 sq. ft. cited in Gore 1873:73, 44,100 sq. ft. in 1873, cited in Smyth 1976: 130
1867	Fort Qu'Appelle, HBC, Qu'Appelle R., Saskatchewan	22,500	Cowie 1993: 210
1875	Ft. Vermilion, HBC, Peace R., Alberta	31,088	HBCA G.1/329
1889	Norway House, HBC, Manitoba	101,040	HBCA B. 154/e/25 fo. 8
1895	Fort Pelly, HBC	31,824	HBCA B.159/e/5, or 62,705 sq. ft. from same

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1674	Ft. Rupert, HBC, Rupert R., Quebec	30	Oldmixon in Tyrrell 1931:395
1682	Ft. Albany, HBC, Albany R., Ontario	6	Kenyon 1986: 76
1682	Moose Factory, HBC, Moose R., Ontario	10	Kenyon 1986: 76
1682	Rupert House, HBC, Rupert R., Quebec	4	Kenyon 1986: 76, citing Rich 1945: 299-300
1693	Albany, French, Albany R., Ontario	6	Williams 1976:11
1695	Fort Bourbon, French, Hayes R., Manitoba	67	under La Forest (French) Tyrrell 1931:21
1705	Ft. Albany, HBC, Albany R., Ontario	46	Kenyon 1986: 86
1717	Ft. Ouiatenon, French, Wabash R., Indiana	12	Tordoff 1983: 144
1731	Fort St. Pierre, French, Rainy R., Ontario	20	Estimate? Burpee 1927: 91
1732	Ft. St. Charles, French, Lake of the Woods, Minnesota	30	Estimate? Burpee 1927: 91
1733	Ft. St. Pierre, Rainy R., Ontario	13	Burpee 1927: 140
1738	Ft. la Reine, French, Assiniboine R., Manitoba	39	Burpee 1927: 310
1753	Ft. la Reine, French, Assiniboine R., Manitoba	20	Brymmner 1887:
1766	Frobisher's/Paquatick, Pedlar, Red R., Manitoba	17	Morton 1937:90, 276;Wallace 1954:5; Lytwyn 1986: 25
1767	Forrest Oakes' House, Pedlar, Red R., Manitoba	9	Morton 1937:90, 276;Wallace 1954:5
1767	Corry's Ft., Cedar L., Saskatchewan	30	7 "large canoes out" Morton 1939:271; Wallace 1954:10
1767	Frobisher's/Paquatick, Pedlar, Red R., Manitoba	17	Morton 1937:90, 276;Wallace 1954:5; Lytwyn 1986: 25
1767	Frobisher's/Wapestan, Pedlar, Red R., Manitoba	9	Lytwyn 1986: 25
1767	Le Blanc's Pemmican Point Hse, Pedlar, Saskatchewan R.,	11	Morton 1939:278; Wallace 1954:7
1768	Finlay's Pasquia Hse, Pedlar, Saskatchewan R., Saskatchewan	5	Morton 1939:279,280; Wallace 1954:8
1768	Le Blanc/Finlay's Nipawin Hse, Pedlar, Saskatchewan R., Saskatchewan	12	Morton 1939:279; Wallace 1954:7,8
1770	Fort Prince of Wales, HBC, Hudson Bay	60	Innis 1970:141
1770	York Factory, HBC, Hayes R., Manitoba	42	Innis 1970:141, 142
1770	Severn Fort, HBC, Severn R., Ontario	18	Innis 1970:142

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1770	Moose Factory, HBC, Moose R., Ontario	25	Innis 1970:142
1770	Albany House, HBC, Albany R., Ontario	30	Innis 1970:142
1770	East Main, HBC, Eastmain R., Quebec	12	Innis 1970:142
1772	Corry's Fort, Pedlar, Cedar L., Manitoba	30	Wallace 1934:41
1772	Red Deer L., Manitoba	25	est. based on 5 canoes, Tyrrell 1934: 33
1773	LeBlanc/Finlays Post, Saskatchewan R.	20	Burpee 1908: 118
1773	Lake Winnipegosis, Bruce, Pedlar, Manitoba	24	Tyrrell 1934:34
1774	Steep Rock R., Blondeau, Pedlar, Manitoba	24	Tyrrell 1934: 34
1775	Ft. des Prairies, Saskatchewan R.	50	Bain 1969: 320, "fifty to eighty men"
1775	Amisk L., Saskatchewan	40	Bain 1969: 264
1776	Cumberland House, HBC, Cumberland L., Saskatchewan	16	Rich 1951:90
1777	Cumberland House, HBC, Cumberland L., Saskatchewan	18	Rich 1951:200
1778	Pine Island L., Pedlar, Saskatchewan	6	Tyrrell 1934:214
1778	Upper Hudson House (Longmoor's Post), HBC, N. Saskatchewan R., Saskatchewan	12	Rich 1951: I:lxxx, 309
1778	Graves, Pedlar, at Eagle Hills, N. Saskatchewan R., Saskatchewan	30	Rich 1951:lii
1778	Holmes, Pedlar, at Eagle Hills, N. Saskatchewan R., Saskatchewan	30	Rich 1951:lii
1779	Clark's Post, Pedlar, Sturgeon L., Ontario	9	Lytwyn 1986: 36
1779	Hudson House, HBC, N. Saskatchewan R.	16	Rich 1952: 15, 27, 66, 69
1780	Hudson House, HBC, N. Saskatchewan R.	20	(Rich 1951:lxxx gives 22) Rich 1952: 27
1782	York Fort, HBC, Hayes R., Manitoba	34	Rich 1951:lxxx, ref. A.6/13 fo.39d (need to see)
1782	Fort Prince of Wales, HBC, Churchill R., Manitoba	39	Rich 1951:lxxxviii
1782	Severn Fort, HBC, Severn R., Ontario	16	Rich 1951:lxxx, ref. A.6/13 fo.39d (need to see)
1782	Gloucester House, HBC, Albany R., Ontario	9	Lytwyn 1986: 54
1782	Pedlars' Upper House, N. Saskatchewan R., Saskatchewan	60	Rich 1952:251
1785	Battle R., Pedlars, N. Saskatchewan R., Saskatchewan	5	HBCA B.87/a/8
1785	Pond's Ft., Athabasca R., Alberta	50	Duckworth 1990:xxxi

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1785	Lac la Ronge, Pedlar's, Saskatchewan	5	Duckworth 1990:xxxi
1785	Baldwin's Post, Pedlar, Rat R., Manitoba	7	Duckworth 1990:xxxi
1785	Ile a la Crosse, Pedlar's, English R., Saskatchewan	31	Duckworth 1990:xxxi
1786	Peace R., Pedlar, Alberta	7	Duckworth 1990:xxxvi
1786	Great Slave L.,Pedlar, NWT	13	Duckworth 1990:xxxvi
1786	Cat L., Pedlars, Ontario	10	Lytwyn 1986: 54
1786	S. Branch House, HBC, S. Saskatchewan R., Saskatchewan	7	HBCA B.205/a/1
1787	Manchester House, HBC, N. Saskatchewan R., Alberta	23	HBCA B.121/a/1
1788	Cumberland House, Cumberland L., Saskatchewan	8	HBCA B.121/a/1
1788	Manchester House, HBC, N. Saskatchewan R., Alberta	37	HBCA B.121/a/1
1789	Chavaudrille's Hse., Pedlars, Cat L., Ontario	11	Lytwyn 1986: 58
1790	Red L. House, HBC, Ontario	15	Lytwyn 1986: 60, 63
1790	Cat L., HBC, Ontario	10	Lytwyn 1986: 60, 63
1792	Fort George, NWC, N. Saskatchewan R., Alberta	60	Masson 1890: II: 17
1792	Ft. Fork, NWC, Peace R., Alberta	30	estimate from Mackenzie 1971
1792	Bad L., HBC, Bloodvein R., Man/Ont	4	Lytwyn 1986: 71
1792	Escabitchewan Hse, HBC, Maynard Falls, Ontario	9	Lytwyn 1986: 71
1792	Lake St. Joseph, Pedlars, Ontario	14	Lytwyn 1986: 72
1792	Buckingham House, HBC, N. Saskatchewan R., Alberta	29	HBCA B.121/a/8
1793	S. Branch House, HBC, S. Saskatchewan R., Saskatchewan	13	HBCA B.205/a/1
1793	Brandon House, HBC	21	Lytwyn 1986: 73
1793	Portage de l'Isle, HBC, Ontario	11	Lytwyn 1986: 73
1793	Portage de l'Isle, NWC, Ontario	3	Smythe 1986: 72
1793	Cat L., HBC, Ontario	4	Lytwyn 1986: 74
1794	Buckingham House, HBC, N. Saskatchewan R., Alberta	35	HBCA B.121/a/8; Johnson 1967: xxv, citing HBCA B.49/f/1 fo. 5; cf. 155 men in Nicks
1794	Ft. Esperance (Ft. Qu'Appelle?), NWC; Assiniboine R., Saskatchewan	17	MG19 C1 vol. 54; 1,000 pickets at 16/man per McDonnell in Masson 1890:I:292
1794	Fort George, NWC, N. Saskatchewan R., Alberta	80	Morton 1929: 41, vs. 110 in Johnson 1961: xxv, citing HBCA B.49/f/1 fo.5; cf. 55 men in Nicks 1969: 80, citing HBCA B.60/a/9;
1794	Pine Is. Fort, NWC, N. Sask. R.	50	5-Feb. HBCA B.24/a/2
1794	Nipawi, HBC, Saskatchewan R., Saskatchewan	14	HBCA B.148/a/1

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1794	York Factory, HBC, Hayes R., Manitoba	63	18 Feb. 1795, HBCA B.239/b/56 fo.8
1795	Carlton House, HBC, Saskatchewan R., Saskatchewan	11	Johnson 1967:xxxvi, HBCA B.27/a/1
1795	Cumberland House, HBC, Cumberland L., Saskatchewan	6	Johnson 1967:8
1795	Nepewan House, HBC, Saskatchewan R., Saskatchewan	6	HBCA B.239/b/56 fo.58
1795	Ft. Edmonton/House (I), HBC, N. Saskatchewan R., Alberta	17	Johnson 1967: xxxi
1795	Slave Fort/Ft. Providence, NWC, Great Slave L., NWT	10	Houston 1974: 131
1795	Wegg's House, HBC, Setting L., Manitoba	8	Smith 1988: 19, citing HBCA B.228/a/fo. 4
1795	Fly L., HBC, Whiteloon L., Ontario	10	Lytwyn 1986: 78
1795	Pt. au Foutre, HBC, Winnipeg R., Manitoba	11	Lytwyn 1986: 80
1795	Somerset House, HBC, Saskatchewan	6	Johnson 1967:xxxvi
1796	Buckingham House, HBC, N. Saskatchewan R., Alberta	29	(up to 36, 20-21 Oct.) HBCA B.49/a/27b; B.24/a/2; Johnson 1967: 75, 76; cf. 33 men
1796	Ft. Edmonton/House (I), HBC, N. Saskatchewan R., Alberta	35	HBCA B49/a/27b
1796	Nipawi, HBC, Saskatchewan R., Saskatchewan	13	HBCA B.49/a/27b
1796	Burntwood L. House, HBC, Manitoba	4	HBCA HBCA B.88/a
1796	Fly L., HBC, Whiteloon L., Ontario	12	Lytwyn 1986: 89
1796	Fly L., NWC, Whiteloon L., Ontario	12	Lytwyn 1986: 89
1796	Post Doubtful, HBC, Black I., Manitoba	11	Lytwyn 1986: 90
1796	Big Island, NWC, Manitoba	3	Lytwyn 1986: 90
1796	Pt. au Foutre, HBC, Winnipeg R., Ontario	6	Lytwyn 1986: 90
1797	Ft. Carlton, Saskatchewan R., Saskatchewan	14	HBCA B.49/a/27b
1797	Cumberland House, HBC, Cumberland L., Saskatchewan	10	HBCA B.49/a/28
1797	Chaboillez' Post, NWC, Red R., Manitoba	16	Hickerson 1970: 279
1798	Henley House, HBC, Ontario	4	HBCA B.86/a/54
1798	Duck L., HBC, Hadwin L.,	7	Lytwyn 1986: 94
1798	Setting R., HBC, N. Saskatchewan R., Saskatchewan	8	HBCA B.197/a/1
1798	Lac la Biche/Red Deer L., NWC, Lac la Biche, Alberta	14	MG19 A8 vol. 5

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1799	Nelson House, HBC, N. Saskatchewan R., Alberta	5	Johnson 1967:219
1799	Acton House, HBC, N. Saskatchewan R., Alberta	17	Johnson 1967: 209, (17 in Johnson 1967:lxxii)
1799	Bolsover House, HBC,	13	HBCA B.20/a/1; cf. 7 men HBCA B.104/a/1
1799	Greenwich House, HBC; Lac la Biche, Alberta	12	HBCA B.104/a/1
1799	Rocky Mountain Ft., NWC, Peace R., B.C.	12	O'Neill 1928: 257
1799	Somerset House, HBC, Saskatchewan	10	HBCA B.204/a/1
1800	Chesterfield Post, NWC, S. Saskatchewan R., Saskatchewan	5	Masson 1890: II: 23
1800	Cumberland House, HBC, Cumberland L., Saskatchewan	7	HBCA B.49/a/30
1800	Island House, HBC, N. Saskatchewan R., Alberta	11	HBCA B.92/a/1
1800	Park R., NWC, Red R., N. Dakota	14	Gough 1988:42
1800	Reed R. post, NWC, Red R., Manitoba	7	Gough 1988:41, 42
1800	Sandy Narrows, HBC, Stout L., Ontario	7	Lytwyn 1986: 99
1800	Sandy L., HBC, Ontario	3	Lytwyn 1986: 99
1800	Island L., HBC, Ontario	5	Lytwyn 1986: 99
1800	mouth of Winnipeg R., XY, Manitoba	5	Lytwyn 1986: 100
1801	Bird Mountain, NWC, Manitoba	10	Lamb 1957: 51
1801	Chesterfield House, HBC, S. Saskatchewan R., Saskatchewan	19	16 or 19 men, Johnson 1967: 314
1801	Cumberland House, HBC, Saskatchewan R., Saskatchewan	13	HBCA B.49/a/30
1801	Jack R. House, HBC, Manitoba	7	Smythe 1968: 86, 87, citing HBCA Oxford House Journal
1801	Pabna R. House, HBC, Red R., Manitoba	9	Gough 1988: 122
1802	Red L., NWC, Ontario	5	Lytwyn 1986: 103
1802	Saint Maries, NWC, Ontario	14	Davidson 1918:279, 280
1802	Kaministiquia, NWC, Ontario	20	Davidson 1918:279, 280
1803	Ft. Alexandria, NWC, Assiniboine R., Saskatchewan	30	Lamb 1957: 69
1803	Island L. Post, NWC. Manitoba	26	Lytwyn 1986: 102
1803	Bad L., NWC, Manitoba/Ontario	6	Lytwyn 1986: 103
1803	Upper Poplar R., HBC, Eardley L., Ontario	5	Lytwyn 1986: 104
1804	Ft. Prince of Wales, HBC, Hudson Bay, Manitoba	37	HBCA B.42/f/1

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1804	Lac des Ecorces, NWC, Bark L., Ontario	5	Lytwyn 1986: 109
1804	Lac la Pluie, NWC, Ontario	40	Gates 1954: 192
1805	Fort Dunvegan, NWC, Peace R., Alberta	60	Babcock 1984: 4, citing MG 19 E1 vol. 24/ 8958-9003
1805	Upper Ft. des Prairie, NWC, Saskatchewan R., Alberta	62	M.G.19 c.1, vol.55
1805	Lower Ft. des Prairies, NWC, N. Saskatchewan R., Saskatchewan	23	M.G.19 c.1, vol.55
1805	Rocky Mountain Ft., NWC, Peace R., B.C.	11	"engages" MG 19 C1 A14: App. J in notes
1805	S. Branch Ft., NWC, S. Saskatchewan R., Saskatchewan	17	Coues 1897: I: 484
1805	Red L., HBC, Ontario	4	Lytwyn 1986: 113, 115
1805	Bad L. Post, NWC, Ontario	18	Lytwyn 1986: 113, 115
1805	Bad L. House, HBC, Ontario	6	Lytwyn 1986: 113, 115
1805	Lac Seul Post, NWC, Ontario	50	Lytwyn 1986: 113, 115
1805	Osnaburgh House, HBC, Ontario	8	Lytwyn 1986: 115
1805	Martin Fall, HBC, Ontario	6	Lytwyn 1986: 115
1805	Henley House, HBC, Ontario	5	Lytwyn 1986: 115
1805	Albany Ft., HBC, Ontario	32	Lytwyn 1986: 115
1805	Severn Ft., HBC, Ontario	20	Lytwyn 1986: 115
1805	York Factory, HBC, Manitoba	30	Lytwyn 1986: 115
1805	Merry's House, HBC, Manitoba	7	Lytwyn 1986: 115
1805	Mille Lacs, NWC, Ontario	8	Lytwyn 1986: 115
1806	Grey Goose L., HBC, Ontario	6	Lytwyn 1986: 116
1806	Great Fall House, HBC, Ontario	6	Lytwyn 1986: 116
1806	Weaver L., HBC, Manitoba	4	Lytwyn 1986: 116
1806	Poplar R. mouth, HBC, Manitoba	3	Lytwyn 1986: 116
1806	Fort Dunvegan, NWC, Peace R., Alberta	44	Babcock 1984: 4, citing 1806 post journal
1807	Beaver Lodge, HBC, Ontario	11	Lytwyn 1986: 118
1807	Sturgeon Lake Fort, NWC, Sturgeon Lake, Ontario	6	Lamb 1957:107
1808	Pembina R.,NWC, Red R., Manitoba	17	Gough 1988: 317
1808	Fort Dunvegan, NWC, Peace R., Alberta	36	Lamb 1957: 118, 119; cf. 44 men in Coues 1897: 11: 512
1809	Great Fall House, HBC, Manitoba	6	Lytwyn 1986: 122
1809	Up. Grey Goose L., HBC, Ontario	6	Lytwyn 1986: 122
1809	Sandy Narrows, HBC, Ontario	10	Lytwyn 1986: 122
1809	Eagle L. House, HBC, Ontario	17	Lytwyn 1986: 126
1809	Eagle L. Post, NWC, Ontario	17	Lytwyn 1986: 126
1809	Ft. Vermilion, NWC, N. Saskatchewan R., Slberta	36	Coues 1897: II: 553-555
1809	Paint Cr. House, HBC, N. Saskatchewan R., Alberta	36	Coues 1897: II: 542, NWC roster
1810	Green L. House, HBC, Saskatchewan	9	HBCA B.89/a/2

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1810	Ile a la Crosse, NWC, Saskatchewan	26	HBCA B.89/a/2
1810	Ile a la Crosse, HBC, Saskatchewan	8	HBCA B.89/a/2
1810	Sandy narrows, HBC	11	Lytwyn 1986: 132
1810	Terre Blanche, NWC, N. Saskatchewan R., Alberta	28	Coues 1897: II: 603
1810	Rocky Mountain House, NWC, N. Saskatchewan R., Alberta	22	Coues 1897: II: 629, 630
1810	White Earth Ft./Ft. Edmonton (III), HBC, N. Saskatchewan R., Alberta	33	estimate derived from Henry in Coues 1897: II: 603, cf. 166 "inhabitants" in Nicks 1969: 80, citing HBCA B.60/a/9
1810	Ft. Fraser, NWC, Fraser's Lake, B.C.	11	Lamb 1957:134
1811	Ft. Astoria, Pacific Fur Co., Columbia R., Oregon	11	Todd 1964:91, 118
1811	Ft. Okanogan, Pacific Fur Co., Columbia R., Washington	5	Todd 1964:96; cf. 10 in Gibson 1997: 5
1811	Sandy Narrows HBC, Ontario	5	Lytwyn 1986: 136
1812	Coutenais Hse., Pacific Fur Co., Kootenay R., B.C.	7	Todd 1964:436
1812	Ft. Edmonton, HBC, N. Saskatchewan R., Alberta	50	HBCA B.60/d/4
1812	Ft. Carlton, HBC, N. Saskatchewan R., Saskatchewan	18	HBCA B.60/d/4
1812	Flathead Post, Pacific Fur Co., Spokane R., Washington	15	Todd 1964:435, 436
1813	Nez Perces, Pacific Fur Co., Nez Perces R., Washington	10	Merk 1968:58
1814	Ft. Augustus, NWC, N. Saskatchewan R., Alberta	31	HBCA B.60/e/1 fo.5
1814	Ft. Vermilion, NWC, N. Saskatchewan R., Alberta	23	HBCA B.60/e/1 fo. 5; cf.90 men in Franchere
1815	Beren's R., HBC, L. Winnipeg, Manitoba	4	HBCA B.60/f/1
1815	Brandon House, HBC, Assiniboine R., Manitoba	17	HBCA B.63/f/1
1815	Cumberland House, HBC, Cumberland L., Saskatchewan	26	HBCA B.60/f/1
1815	Ft. Edmonton, HBC, N. Saskatchewan R., Alberta	34	HBCA B.60/f/1, cf. 35 in B.60/d/8
1815	Ft. Carlton, HBC, N. Saskatchewan R., Saskatchewan	17	HBCA B.60/d/8; B.60/f/1
1815	Ft. Hibernia, HBC, Saskatchewan	16	HBCA B.60/f/1
1815	Jack R. House, Manitoba	9	HBCA B.60/f/1
1815	Manitoba House, HBC, Manitoba	5	HBCA B.60/f/1
1815	Moose L. Post, HBC, Alberta	8	HBCA B.60/f/1

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1815	Ft. Qu' Appelle, HBC, Qu' Appelle R., Saskatchewan	26	HBCA B.60/f/1
1815	Paint R., House, HBC, N. Saskatchewan R., Alberta	17	HBCA B.60/f/1, cf. 20 in B.60/d/8
1815	Red Deer's R., HBC, Manitoba	6	HBCA B.60/f/1
1815	Red L. House, HBC, Ontario	5	Lytwyn 1986: 144
1815	Swan R., HBC, Manitoba	7	HBCA B.60/f/1
1815	Turtle R., HBC, Manitoba	8	HBCA B.60/f/1
1816	Red L. Post, NWC, Ontario	8	Lytwyn 1986: 144
1817	Big Fall House, HBC, Ontario	7	Lytwyn 1986: 145
1817	Fort Gibralter (II), NWC, Red R., Manitoba	7	Wolk 1982: 29, citing HBCA B.22/d/1 fo. 25
1818	Ft. George-Astoria, NWC, Columbia R., Oregon	56	Oregon Historical Quarterly 1918:271
1818	Jack Head Post, NWC	7	Lytwyn 1986: 148
1819	Bad L. House, HBC, Manitoba	5	Lytwyn 1986: 150
1819	Sandy Point L., HBC, Ontario	5	Lytwyn 1986: 150
1819	Ft. Waterloo, HBC, Lesser Slave L., Alberta	5	HBCA B.115/e/1 fo. 3d
1820	Sandy Pt. L., HBC, Ontario	6	Lytwyn 1986: 156
1820	Carlton House, HBC, N. Saskatchewan R., Saskatchewan	10	Franklin 1823: 115-116?
1821	Berens House, HBC, Athabasca R., Alberta	15	Rich 1938: 366
1821	Colvile House, HBC, Peace R., Alberta	19	Rich 1938: 386
1821	Ft. de Pinette, HBC, Peace R.,	21	Rich 1938: 386
1821	Harrison's House, HBC, L. Athabasca, Saskatchewan	15	Rich 1938: 365
1821	Ft. St. Mary's, HBC, Peace R., Alberta	20	Rich 1938: 385
1821	Ft. Resolution	28	Rich 1938: 374
1821	Ft. Wedderburn, HBC, L. Athabasca, Alberta	68	Rich 1938: 365
1821	Acton House, HBC, N. Saskatchewan R., Alberta	11	Dempsey 1973: 13, 14
1822	Ft. Kilmaurs, HBC, Babine L.,	11	Fleming 1940: 17
1822	Ft. Providence, HBC, Great Slave L., NWT	2	Houston 1974: 131
1823	Fort St. John, HBC, Peace R., B.C.	18	B.189/a/1, St. John Post Journal
1823	McLeod's Ft., HBC, McLeod L., B.C.	12	HBCA B.119/a/1
1824	Flat Head Hse, HBC, Spokane R., Washington	8	Merk 1968:44
1824	Ft. George/Astoria, HBC, Columbia R., Oregon	70	Merk 1968:66
1824	Kootenae Hse, HBC, Kootenay R., B.C.	6	Merk 1968: 46

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1824	Kamloops, HBC, Thompson R., B.C.	23	Merk 1968:52
1824	Wall Walla/Nez Perces, HBC, Nez Perces R., Washington	11	Merk 1968: 59, 66
1824	Spokane House, HBC, Spokane R., Washington	22	Merk 1968:46
1824	Ft. George/Astoria, HBC, Columbia R., Oregon	70	Merk 1968:66
1824	Kootenae Hse, HBC, Kootenay R., B.C.	6	Merk 1968: 46, 66
1825	Kamloops, HBC, Thompson R., B.C.	14	Proposed men. Merk 1968:52, 66
1825	Walla Walla/Nez Perces, HBC, Nez Perces R., Washington	9	Proposed men. Merk 1968: 59, 66
1825	Spokane House, HBC, Spokane R., Washington	15	Proposed men. Merk 1968:46, 66
1825	Ft. George/Astoria, HBC, Columbia R., Oregon	23	Proposed men. Merk 1968:66
1825	Norway House, HBC, Jackfish R., Manitoba	5	Flrming 1940: 112
1826	Fort Colvile, HBC, Columbia R., Washington	10	Chance 1973: 11
1827	Fort Alexandria, HBC, Fraser R., B.C.	7	B.5/e/1 fo.22 Report of Fort Alexandria
1827	Fort Langley, HBC, Fraser R.,	25	Maclachlan 1998:23
1827	Ft. Chipewyan, HBC, L. Athabasca, Alberta	24	HBCA B.39/a/26, fo. 26
1828	Brandon House (IV), HBC, Assiniboine R., Manitoba	13	Stewart 1928:29, 30
1828	Dunvegan, HBC, Peace R.,	28	Babcock 1984: 8, citing 1828 journal
1828	Rocky Mountain House, HBC, N. Saskatchewan R., Alberta	13	Smyth 1976: 86
1829	Fort Langley, HBC, Fraser R.,	18	Maclachlan 1998:221-222
1829	Rocky Mountain House, HBC, N. Saskatchewan R., Alberta	12	Smyth 1976: 90
1830	Fort Colvile, HBC, Columbia R., Washington	12	Chance 1973: 13; 26 men in Gibson 1997:99
1830	Norway House, Jackfish R., Manitoba	4	Fleming 1940: 259, 260
1830	Rocky Mountain House, HBC, N. Saskatchewan R., Alberta	11	Dempsey 1973: 31; cf. 13 men in Smyth 1976: 91
1831	Fort Pelly, HBC, Saskatchewan	15	Long 1987
1832	Ft. Chipewyan, HBC, L. Athabasca, Alberta	18	HBCA B.39/a/29
1833	Ft. Chimo, HBC, Ungava Bay, Quebec	10	Cowie, Isaac 1993:474
1834	Split L. House/Three Points L. House, Manitoba	4	Oliver 1915: II:700, 701

APPENDIX 5. Labour Population (Employees) per Site.

Date	Site, Location	No. of Men per Fort	References
1838	Dunvegan, HBC, Peace R.,	11	Babcock 1984: 11
1842	Berens R., HBC, Manitoba	3	Oliver 1915: II: 839
1842	Churchill, HBC, Manitoba	7	Oliver 1915: II: 843, 844
1842	Frances L., HBC, NWT	5	Oliver 1915: II: 839
1842	Nelson R., HBC, Manitoba	3	Oliver 1915: II: 839
1842	Norway House, HBC, Manitoba	9	Oliver 1915: II: 839
1842	Peel's R., HBC, NWT	8	Oliver 1915: II: 839
1843	Severn, HBC, Ontario	4	Oliver 1915: 844
1843	Churchill, HBC, Hudson Bay, Manitoba	7	Oliver 1915: 859
1843	Dunvegan, HBC, Peace R.,	8	Oliver 1915: 853
1843	Ft. Ellice, HBC, Manitoba	8	Oliver 1915: 856
1843	Norway House, Jackfish L., Manitoba	9	Oliver 1915: 858
1860	Dunvegan, HBC, Peace R.,	8	Babcock 1984: 20
1867	Fort Qu'Appelle, Qu' Appelle R., Saskatchewan	15	Cowie 1993: 214, 215
1870	Last Mountain House, HBC, Saskatchewan	7	Cowie 1993: 416
1874	Rocky Mountain House (III), HBC, N. Saskatchewan R.,	2	Dempsey 1973: 26, citing Glenbow Archives Paper of McDougall
1876	Ft. Edmonton, HBC, N. Saskatchewan R., Alberta	9	HBCA B.60/f/1 fos. 15, 16
1876	Lesser Slave L. Post, Alberta	8	HBCA B.60/f/1 fos. 15, 16
1891	Manitoba House, HBC, Manitoba	2	HBCA D.25/12 fo. 256
1893	Cumberland House, HBC, Cumberland I., Saskatchewan	4	HBCA D.25/17 fo. 100, 101

APPENDIX 6a. Returns on Trade to the North West Company, 1784-1818.

Year	Total Value of North West Company Annual Returns*
1784	£ 30,000
1785	no information
1786	32,404
1787	no information
1788	40,000
1789	53,000
1790	72,000
1791	72,000
1792	72,000
1793	72,000
1794	72,000
1795	72,000
1796	98,000
1797	98,000
1798	98,000
1799	98,000
1800	107,000
1801	107,000
1802	107,000
1803	107,000
1804	192,540
1805	154, 479
1806	136.133
1807	127, 988
1808	118,118
1809	105,237
1810	85,421
1811	84,225
1812	84,008
1813	150,919
1814	143,898
1815	133,685
1816	192,220
1817	153750
1818	70,658

*Reference: Data from Innis 1970: 258, 259, and rounded to the nearest pound value.

APPENDIX 6b. Custom House Values on Imports of Castoreum, Skins and Furs from Canada to Great Britain, 1784-1821.

Year	Custom House Values (to nearest £ 100)*
1784	£ 72,000
1790	77,900
1800	144,300
1801	68,500
1802	82,100
1803	70,700
1804	71,500
1805	64,300
1806	51,600
1807	27,400
1808	81,400
1809	21,300
1810	59,500
1811	14,400
1812	30,200
1814	48,300
1815	23,400
1816	29,600
1817	47,200
1818	43,000
1819	34,700
1820	46,000
1821	33,100

*Reference: Data from Davidson 1918: 171, 172.

APPENDIX 6c. Numbers of Packs of Furs Produced in the Athabasca District, 1778-1818.

Year	Numbers of Packs	References
1778	140	Wallace 1954: 16
1791	300	Tyrrell 1934: 315
1792	392	NAC MG 19 C1 vol. 5
1793	426	NAC MG 19 C1 vol. 5
1797	350	HBCA B.49/a/27b
1798	512	B.49/a/27b
1800	420	NAC MG 19 B1 vol. 1/43
1800	648	Parker 1987: 129
1803	213	Parker 1987: 129
1804	399	Parker 1987: 129
1805	437	Parker 1987: 129, gives 380 packs but canoe averages of 23 packs/canoe = 437
1807	694	Davidson 1918: 229
1813	Short returns all departments	Wallace 1934: 272
1814	380	Masson 1889: I: 114
1816	400	Masson 1889: I: 117
1817	380	Masson 1889: I: 119
1818	430	Masson 1889: I: 119

APPENDIX 6d. The Number of Beaver Skins Exported from Canada, 1793-1808.

Year	Number of Beaver Skins Exported Annually*
1793	182,346
1794	155,559
1795	144,945
1796	130,820
1797	124,612
1798	127,440
1799	117,165
1800	135,043
1801	119,965
1802	144,189
1803	93,778
1804	111,448
1805	92,003
1806	119,708
1807	114,363
1808	126,927

*Reference: Data from Innis 1970: 265.

APPENDIX 6e. Official Values of the Trade of the Hudson's Bay Company with Great Britain 1772-1837.

Year	**Imported to Great Britain from Hudson Bay***
1738-1748	Decline from 69,911 to 39,505 Eccles 1979: 434, citing Lawson 108
1700-1760	400,000 livres/year Lunn 'Economic Development' 455, 464-5
1772	£ 8006
1773	8943
1774	13441
1775	7412
1776	6635
1777	8243
1778	6589
1779	5117
1780	15017
1781	14764
1782	6802
1783	7555
1784	7683
1785	11270
1786	12976
1787	16466
1788	14703
1789	15102
1790	14089
1791	18369
1792	18492
1793	16291
1794	15452
1795	7936
1796	29775
1797	20732
1798	a value of £ 14-10-0 is negligible, and is not included in graph formulation
1799	18242
1800	38463
1801	17023
1802	16018
1803	10952
1804	15371
1805	15088
1806	18879
1807	20911
1808	a value of £ 8-10-0 is negligible, and is not included in graph formulation
1809	20876
1810	8776
1811	28768
1812	29063
1813	no volume is registered, and is not included in graph formulation as zero

APPENDIX 6e. Official Values of the Trade of the Hudson's Bay Company with Great Britain 1772-1837.

Year	Imported to Great Britain from Hudson Bay*
1814	15826
1815	13010
1816	£ 8124
1817	28099
1818	27418
1819	24210
1820	22469
1821	27522
1822	39144
1823	34356
1824	35472
1825	32057
1826	40742
1827	51171
1828	54961
1829	60522
1830	32857
1831	66672
1832	39379
1833	7173
1834	64221
1835	65082
1836	26313
1837	88385

Reference: Copied from Davidson 1918: 120, 326-329, and rounded to the nearest pound value.